

AD-781 242

RECONNAISSANCE IN MOUNTAIN TERRAIN

A. D. Sinyaev

Army Foreign Science and Technology Center  
Charlottesville, Virginia

3 April 1974

DISTRIBUTED BY:

**NTIS**

National Technical Information Service  
U. S. DEPARTMENT OF COMMERCE  
5285 Port Royal Road, Springfield Va. 22151



DEPARTMENT OF THE ARMY  
U.S. ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER  
220 SEVENTH STREET NE.  
CHARLOTTESVILLE, VIRGINIA 22901

TRANSLATION

In Reply Refer to:  
FSTC-HT-23- 1421-71  
DIA Task No. T70-23-01

Date: 5 April 1974

ENGLISH TITLE: RECONNAISSANCE IN MOUNTAIN TERRAIN

SOURCE: Military Publishing House, Ministry of Defense, USSR,  
1963, Moscow.

AUTHOR: A. D. Sinyayev

LANGUAGE: Russian

COUNTRY: USSR

REQUESTOR: USA Cold Regions Res. and Engr. Lab.

TRANSLATOR: ACSI K-0375

KEY WORDS

MILITARY OPERATION  
MOUNTAIN WARFARE  
RECONNAISSANCE  
MOUNTAIN WARFARE TRAINING  
MOUNTAIN  
MOUNTAIN CLIMBING DEVICE

STREAM CROSSING  
MOUNTAIN CLOTHING  
SURVIVAL SHELTER  
COMBAT TRAINING  
CBR DETECTION

COSATI SUBJECT CODE: 15,03;05;19  
COUNTRY CODE: UR

**GRAPHICS NOT REPRODUCIBLE**

ABSTRACT:

This booklet sets forth the effect of mountainous terrain conditions on the organization and conduct of reconnaissance in modern war. Recommendations and methods for the surmounting of various obstacles are included in the report. It also gives features of small reconnaissance unit actions in observation, raids, ambush and operations in the enemy rear.

This translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

SI-72-50-865

NOTICE

The contents of this publication have been translated as presented in the original text. No attempt has been made to verify the accuracy of any statement contained herein. This translation is published with a minimum of copy editing and graphics preparation in order to expedite the dissemination of information.

Approved for public release. Distribution unlimited.

Reproduced by  
NATIONAL TECHNICAL  
INFORMATION SERVICE  
U S Department of Commerce  
Springfield VA 22151

AD 781242

DDC  
RECEIVED  
JUL 10 1974  
LIBRARY

This booklet sets forth the effect of mountainous terrain conditions on the organization and conduct of reconnaissance in modern war. It contains recommendations and methods for the surmounting of various obstacles by scouts. It gives features of small reconnaissance unit actions in observation, raids, ambush, operations in the enemy rear, and of the composition of reconnaissance detachments and reconnaissance groups as well.

This booklet is intended for soldiers, non-commissioned officers and officers of Army units, students in military schools and reserve officers.

#### Preface

Skillful use of the features of mountainous terrain, physical fitness of personnel and ability to overcome any obstacle give a significant advantage to units and, during decisive, bold and persistent actions, help to defeat the enemy.

Successful actions by scouts in mountains depends on thorough training, endurance, experience and persistence in overcoming obstacles. The conduct of reconnaissance in mountains also requires of the unit continual battle readiness, skill in defending itself against enemy nuclear weapons and in negotiating terrain areas contaminated with radioactive substances.

Conditions in mountainous terrain demand intelligence, rather than unimaginative and mechanical actions, not only from officers, but from every scout and every reconnaissance unit sent on reconnaissance.

This is why, for successful actions in mountains, a thorough mastery of all features of mountainous terrain is necessary.

An able scout can make mountains his trusty ally in combat operations, so that they "double the strength of the brave and deny aid to the weak."

A great range of military actions in mountains took place in earlier wars, especially during World War II. This convinces us that, for well-

trained scouts, impregnable mountains and inaccessible places in mountains do not exist. Notwithstanding the numerous difficulties of fighting in mountains, Soviet Army soldiers, like the Russian soldiers of Suvorov's time, fear no mountains at all. Soviet warriors proved this to the whole world when, in World War II, under the most difficult conditions, they beat the Fascist invaders in the mountains of the Caucasus, Crimea and Carpathia.

However, actions of scouts in mountainous terrain become much more complicated. A scout who is not prepared for action in mountains, is untrained and physically weak, will stand before every, even insignificant, obstacle and spend time and strength overcoming it which he still will need.

At the same time, mountainous terrain provides excellent conditions for conducting reconnaissance. Mountains favor secret movement of scouts, and provide excellent conditions for actions in the enemy rear, as well as for organization and conduct of raids and ambushes.

Scanty road networks, sharply broken mountain relief, a large number of areas masked from fire and hidden approaches provide excellent conditions for action in enemy positions.

To achieve success in reconnaissance in mountains, it is necessary to know well the features of mountainous terrain and conditions which affect both the conduct of reconnaissance and the tactical employment of all arms of the service.

The history of earlier wars gives many instances when actions of scouts in mountains ended in failure because of ignorance of mountainous terrain and inability to operate under these conditions.

This is why, in military training of scouts in mountain activities, these features must be taken into account and the training conducted in specific situations, as close as possible to those of combat.

Mountainous terrain and its influence on organization and conduct of reconnaissance

Features of mountainous terrain

Mountainous terrain has a great influence, both on the conduct of combat operations by all arms of the service and on the conduct of reconnaissance.

It is characterized by sharply broken relief, the presence of almost impassable natural obstacles and ease of losing directions, a very small number of roads and populated places, a very great variety in climate and vegetation, the possibility of occurrence of rockfalls, avalanches, landslides and storms, flash flooding, as well as the prevalence of rocky soil.

The passability of mountains depends on the arrangement of ridge systems and their spurs, valleys and gorges. The best passability is in mountainous terrain with parallel ridges and open, longitudinal valleys.

Medium passability appears in mountainous terrain, as a basic ridge with diverging secondary spurs. These spurs are cut by transverse valleys, the headwaters of which cut into the main ridge crest to form saddles. The lowest saddles offer the most convenient crossing places.

The least passable mountainous terrain has ridges radiating in all directions from a central, difficult, Alpine massif. Such terrain must be crossed at high altitudes, usually with no roads, by steep, bare or snow- and ice-covered slopes.

Mountains are classed as low, medium-altitude and high.

Low mountains have altitudes of up to 800-1000 m. They are the most passable. Such mountains have smooth relief -- rounded summits and gentle slopes. Among the low mountains are the central Urals, the northern ridges of the Caucasus foothills, the mountains of the Kol'skiy Peninsula and others.

Medium-altitude mountains have altitudes of 1000-2000 m (Fig. 1). They also are distinguished by gentle and rounded forms, covered by shrubs and forest. Passes over these mountains are located at altitudes of 700 m and higher. Among such mountains are included the mountains of the Crimea, Carpathia, Sikhote-Alinya and others.



Fig. 1: General view of medium-altitude mountains

High mountains -- these steep and extremely broken heights have altitudes of 2000 m and higher (Fig. 2). They are characterized by the presence of perpetual snow and glaciers on the summits and ridge crests. Passes over these mountains are located at altitudes of from 1000 to 3000 m and more. Among such mountains are included the Great Caucasus range, Pamirs, Tyan'-Shan and others.

However, the passability of mountains depends not only on their altitudes, but first and foremost on the steepness of their slopes, the pres-

ence of precipices, chasms, crevices, rocky areas, talus, landslides, snow fields and glaciers, as well as the presence and condition of road nets.

Therefore, any commander, organizing a reconnaissance in the mountains, must allow for these relief features and, accordingly, determine the necessary force and means for the reconnaissance.

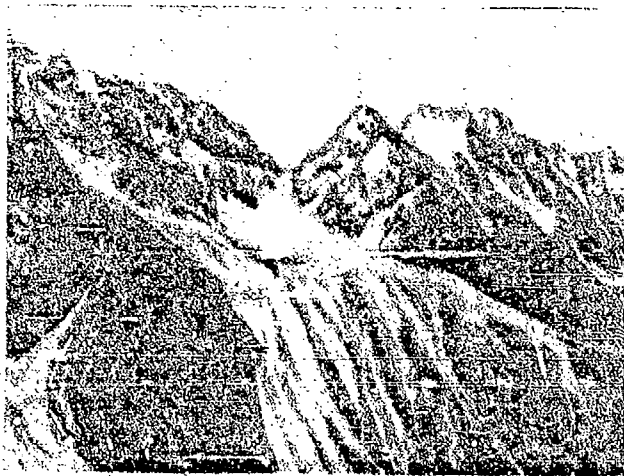


Fig. 2: General view of high mountains

#### Climate of mountainous regions.

Mountainous regions have greatly varied and harsh climates. They are characterized by significant temperature variations, depending on the altitude of the area and time of day, as well as on the sharpness and frequency of weather changes.

In the course of one day, at the same altitude in the mountains, there are sharp changes in temperature. There are especially sharp drops in temperature after sunset and when clouds appear. At heights of greater than 2000 m the days are warm, but at night standing water freezes. Sharp drops in temperatures in the mountains bring on gale winds, sometimes reaching hurricane force (wind speeds of 10-12 m/sec). Snow storms also are characteristic of mountainous terrain. Strong winds in the mountains make scout movements more difficult and in winter conditions they intensify the cold, so that it is necessary to take measures against personnel being frost-bitten.

Strong sunshine in clear weather frequently causes face burns and, in the presence of snow in mountains, may cause temporary blindness.

There are frequent cloudbursts in the mountains. Due to the steep and extremely broken relief, the water flows swiftly from the mountain slopes to the valleys and gorges, which causes considerable destruction and creates obstacles to military operations. During rains the ravines become

full, making crossing difficult, and the paths, grassy slopes and rocks become slippery. It is, therefore, necessary to take measures for the safety of scouts descending the mountain slopes and rocks. Soaked clothing hinders scout movements, makes it easier to take cold, and, at zero temperatures, makes it easier to become frostbitten.

Fog in mountains, especially in winter, is the normal phenomenon. Mountain tops and slopes are quickly closed in with such thick fog, that all observation and orientation by landmarks is ruled out. Fogs persist longest of all in gorges and hollows.

At high altitudes in mountainous terrain (above 2000 m), the human organism experiences some oxygen shortage, and this increases the heartbeat and brings on dizziness. When personnel, especially those with little training, are much fatigued, they come down with mountain sickness (the symptoms of which are headache, nausea, buzzing in the ears, and physical weakness). That is why the physically strongest soldiers, who are trained ahead of time for operations under mountain conditions, are selected for a reconnaissance unit complement.

In addition, in organization and conduct of reconnaissance in mountains, it must be taken into account that, because of the insufficiency of oxygen and lower atmospheric pressure, a longer time and more heat are required for hot food preparation and for mechanical transport -- more fuel than under normal conditions.

Every officer, and especially reconnaissance officers, must recognize signs of changing weather in mountains and immediately take necessary steps for security of military operations and protection of the unit. Thus, for example, twinkling stars toward morning, lifting fog, red sky in the morning, temperature drop during morning hours, dimming sunlight -- all of these are heralds of deteriorating weather.

As for signs of improving weather in mountains, red sky at night and in the valleys -- temperature drop in the evening hours, evening fog and cold nights, clear sky, morning dew, haze and concealed mountain tops appear.

Signs of an approaching thunderstorm include the appearance of masses of cumulus clouds up to 2-3 hours before it begins.

#### Natural dangers in mountains

In mountains, especially in high mountain regions, natural obstacles may suddenly spring up as the result of rockfalls, landslides or avalanches. These events are dangerous; therefore, scouts operating in mountains seek to know the causes of these obstacles and the signs of their occurrence, and to know how to take precautionary measures in good time.

Rockfalls, avalanches, landslides and so forth are dangerous for those who do not know when and from where they might come and how to escape them.

#### Rockfalls.

Under the influence of various factors a gradual deterioration of the mountain rock takes place, so that it becomes unstable and fragile. Rockfalls occur most often as a result of thawing snow, heavy cloudbursts, hard frosts, alternation of heat and cold, and from the effect of the wind. As they fall, rocks fall onto unstable rock, causing rockfalls. If a scout finds himself in a place of possible rockfalls, he will want to know what safety measures to take, and, better yet, how to bypass them, because the slightest carelessness might cause an accident or even prevent fulfillment of his assigned mission.

Avalanches -- these are masses of snow, sliding down mountain slopes with great speed and sometimes having great destructive force. They may occur any time of the year, but most often in winter. There is a danger of avalanches on slopes of 20 degrees or more and, if the slopes are bare, without trees and shrubs -- then more gently sloping.

#### Mountain roads

In mountain regions the number of roads is very limited. Existing roads, as a rule, are narrow, twisting, and have very steep grades. Their trafficability changes sharply, depending on meteorological conditions. During movement on mountain roads, personnel of reconnaissance units become very fatigued, vehicles and military equipment wear out more quickly than along roads in normal situations, and speed of movement decreases. The better sections of roads in mountains are found in valleys and on rocky ridges. Some sections of road, for example, those along natural and artificial cornices and lodges, are narrow and are easily destroyed.

The condition of mountain roads (paths) depends on the time of year, weather and even on their maintenance. One and the same mountain road, at one time of the year will be passable for motor transportation, and at another time, due to slush, snowdrifts or ice cover, may be difficult for even men and pack animals. Pack trails usually have steep grades, sharp turns, and frequently cross precipices. Movement along such trails is one man at a time; it takes a great deal of energy and lots of time.

Moreover, in the mountains one may often encounter mountain paths worn and used by local residents; their passability is no different than that of pack trails and they do not go deep into the mountains, but into populated places.

Cross-country movement in mountainous terrain makes scout activities much more difficult, quickly fatiguing the scouts and slowing the tempo of their reconnaissance. This is why it is necessary to emphasize once more

the need for rigorous hardening, physical preparation and endurance, as well as skill of scouts in overcoming various mountain obstacles.

### Mountain rivers

Rivers and streams affect reconnaissance unit actions to a significant degree in mountain regions.

The width, depth and speed of mountain rivers is not constant; they change according to the amount of precipitation and the time of year. The banks of mountain rivers are most often steep, rocky and abrupt; closer to the valleys the banks are more gently sloping. In the majority of cases, the bottoms of mountain rivers are rocky; where rivers discharge from the mountains into valleys, the bottoms become less rocky, and sometimes in such places silted bottoms may be encountered.

In rivers with rocky bottoms the water is always transparent and the bottoms are easily visible. In places with silted bottoms the water will be so turbid that it will be absolutely impossible to see a place where it will be safe to cross the river.

The majority of mountain rivers have several branches. One of them will appear to be the main branch and is characteristically deep, while the other ones, depending on the time of year, may be dry, but they can always be distinguished, since their bottoms are littered with rock or covered by silt. During rains or during the spring floods these branches run full. Therefore, scouts operating in such places must remember that, when crossing the main branch they may sometimes have to find a place to cross several other branches.

Mountain streams are characteristically shallow or completely dry in winter and in warm weather, but when the snow is melting and when there is abundant precipitation shallow rivers are transformed into full and violent ones, and fording them often becomes very difficult. In summer and fall the water level in mountain rivers depends on the amount of precipitation. Depending on the abundance of precipitation, water levels may rise by 1-3 m in a very short time. In times of rising water levels, crossing mountain rivers calls for particular caution, since the current speed reaches 4-6 m/sec. The force of the current becomes so great that the stream can roll large boulders and masses of small stones along the bottom. The flow of mountain rivers is accompanied by a loud noise, sometimes so loud that it can be heard 2-3 km away, and the same river noise can be so loud that in the immediate neighborhood it is sometimes impossible to hear a man's voice or even rifle fire.

Fords over mountain rivers are very changeable, especially during periods of heavy precipitation, when the violent flow of water continuously shifts stones on the bottom, with the result that, where today there may have been a good ford, tomorrow there may be great depth, with all fording ruled out. In winter, mountain streams, because of their swift currents,

almost never freeze, but usually have a light flow and do not appear to be serious obstacles.

Effect of mountainous terrain on the damage effects of nuclear weapons and protection against them

In organizing a reconnaissance in mountains, it must be considered that nuclear weapons damage and defense against them have several peculiarities in comparison with nuclear weapon effects on level terrain. These peculiarities affect organization, as well as conduct, of reconnaissance.

The sharply broken character of mountain terrain decreases the influence of light and penetrating radiations, and the radius of damage from the shock wave of a nuclear explosion. At the same time, effectiveness of nuclear explosions, especially in narrow valleys, passes and gorges, as well as on the steep slopes of mountains, may be increased as the result of multiple reflections of shock waves, leading to significant local increases in destruction. Therefore, the commander of a reconnaissance unit must give particular attention to providing organizational protection from nuclear weapons and other means of mass destruction during activities of the scouts, along roads, in valleys, canyons, ravines and on passes. In mountainous terrain nuclear explosions may cause landslides, talus slides, rockfalls and avalanches which increase the degree of destruction and significantly increase the difficulty of operations by reconnaissance units in solving the problem set before them.

Radioactive contamination of mountain areas is not uniform. Air currents in mountainous terrain normally flow along long valleys and gorges; therefore, the radioactive contamination in these places will be heavier than in elevated sectors.

Dense deciduous forests in mountains decrease the destructive effect of shock waves; in addition, forest protects against light radiations. Since radioactive substances settle in the treetops, the degree of radioactive contamination in large forested areas in the mountains is decreased. At the same time, when dry litter, windfallen twigs and branches, and dry leaves are present, light radiation may cause many fires. Usually fires spring up on the edges of woods, in cleared areas and in glades.

Scouts must remember that, in mountains, natural shelter from the effects of nuclear explosions may be found in deep hollows, narrow and deep ravines, as well as in foxholes, which cut down the losses in personnel, weapons and equipment.

Inability to take protective measures from nuclear weapons and to use the terrain for this purpose aggravates already great difficulties with which scouts meet in the mountains, and may lead to failure to fulfil the assigned mission.

## Mountain movements

Limited numbers of roads in mountains makes troop movements very difficult. Movement in the absence of roads and trails across heights, gorges and passes is difficult even for small reconnaissance detachments.

A great expenditure of time is required for scouts to move a short distance, because movement is principally climbing up and down, and it takes great physical effort. This circumstance must be considered when setting the time required for fulfilment of a mission by a reconnaissance unit.

Movement in mountain regions is complicated by the difficulty of orienting oneself, due to the absence of distinctive reference points, the similarity of ground features, the small number of roads and populated places and the occurrence of thick fogs. The difficulty of movement also is increased by sudden changes in air temperature during rain, thunderstorms, snowstorms, winter and so forth.

Scouts moving in mountains absolutely must be able to climb rocks, ice- and snow-covered peaks, to traverse gorges, mountain rivers and so forth, and, in short, have the skill of a good alpinist.

Scouts in mountainous and forested mountain terrain, depending on conditions and tasks facing them, move over mountain, forest and dirt roads and trails, as well as off them.

Movement by road or trail in the mountains is very advantageous from the standpoint of saving time and conserving physical strength. However, scouts can take advantage of them only when they are confident that they will not fall into enemy ambushes. Therefore, use of mountain roads and trails is recommended only in rare circumstances: moving in one's own unit area, when leaving the initial position and during movement of the main force of the reconnaissance element (reconnaissance detachment).

In properly setting up a reconnaissance mission, it is necessary to know the rate of movement of a reconnaissance unit in mountainous terrain. It is necessary also to know that the movement rate in mountains varies, depending on the character of the terrain, steepness of grades, weather conditions, season and time of day. Experience during World War II and in post-war military exercises shows that the average march rate on dirt roads on slopes of up to 20° decreases to a maximum of 2-4 km/hr, and on steeper slopes to not more than 1-1.5 km/hr. Regarding movement over mountain trails with slopes of up to 30°, the march rate may be no more than 400-500 m/hr, and in winter conditions even slower.

When scouts move in armored personnel carriers in mountains, vehicle speeds will vary: on straight sections with good visibility speed may not exceed 30-35 km/hr; up grades of more than 10°, no more than 15-20 km/hr; down similar grades, 7-8 km/hr; on curves, not over 5 km/hr; on very slippery sections, not over 10-15 km/hr; and in fog, no more than 5 km/hr.

During foot movement over mountain trails, the pace must be uniform and the steps of medium length; the feet must be firmly planted at each step. The steeper the road or trail, the more necessary it becomes to use the hands while climbing, holding on to firm rock outcrops, branches of bushes or trees, or grass.

Rain, snow or heavy frost causes considerable deterioration of the condition of mountain trails, so that scout movements on them are made even more difficult. Therefore, movement under these conditions must be even more cautious, distances between scouts are increased and measures for unit and individual safety are taken.

In choosing the movement route of scouts in mountains, consideration must be given to the nature of enemy activities and to the status of their own forces and of the reconnaissance mission being carried out.

Movement on mountain roads and trails, by comparison with off-road movement in mountains, is less fatiguing to scouts and permits accomplishment of the reconnaissance mission in a much shorter time, and this is a very important factor for scouts.

Therefore, if a reconnaissance unit has to conduct a reconnaissance, is not in contact with the enemy, is a considerable distance from him and from a region in which there is a likelihood of meeting the enemy, it is expedient to move by mountain roads and trails, maintaining vigilance.

However, if our forces find themselves in contact with the enemy or in an area close to immediate contact with the enemy, movement by mountain roads and trails is more dangerous than off-road movement, since the enemy will conduct a doubled watch over him on roads, bring fire of all kinds of weapons to bear on him, mine separate sections, construct obstructions, particularly in hollows and defiles, and will set up ambushes in the probable direction of movement of our scouts. Therefore, under these conditions, it is expedient for scouts to move, not on mountain roads and trails, but off them, that is, over the slopes of heights and gorges, not letting the reconnaissance objective out of their field of vision.

Any part of mountainous terrain favors the setting up of ambushes by the enemy; therefore, scouts must be especially vigilant and careful, and movements across gorges, bridges, passes and thick underbrush must be made only after they have been thoroughly surveyed.

In all cases, when selecting the route of march, the specific tactical situation must be considered. An unskillful route selection may lead to mission failure and to casualties.

One example of an unsuccessful route selection during military operations in the Carpathians concerns a reconnaissance unit of 10 men, who were assigned the task of penetrating enemy positions to a depth of 45 km in Region N (an area crossed by two mountain roads), setting up secret observation

of movement of enemy forces on designated roads, and, if possible, prisoners. The group successfully crossed the front line by night and continued by road toward the designated point, without taking sufficiently effective security measures. At dawn, approximately 10 km behind the front lines, the group fell into an ambush set up by the enemy in a ravine near a bridge. As a result of this sudden enemy attack, the scouts, losing two dead, had to retreat into the mountains and not until morning of the following day did they return to their own positions, without having fulfilled their assigned mission. This is what happened because of an unwise route selection and poor organization of the reconnaissance mission. If the group commander, after crossing the front lines, had not taken the easy route, had organized a cross-country approach to the objective and, most important, appropriate security measures, then probably the scouts would have avoided the enemy ambush and would have completed their assigned mission.

When moving through unfamiliar mountain-forest regions, it is useful to mark slopes or large rocks, bend down branches, pile stones or bunches of grass in a predetermined manner and so forth; in returning, this helps to insure movement in the proper direction.

Moving through mountains with rich vegetative cover near the enemy, scouts must listen intently for the slightest rustle or sound and be able to distinguish the natural sound of water, leaves and so forth from the artificial ones made by the enemy.

Paths along high crests or across summits which are under enemy observation, and the crests and summits themselves, must be followed on the reverse slopes -- hidden, crawling and using little clefts and depressions.

On not-so-steep, grass-covered slopes movement is "head on," with the feet placed in "herringbone fashion." If the slope is greater than 40°, it is necessary to move "sidestep," alternately leading with the right foot, then with the left foot, or in "zigzag" (Fig. 3). When ascending, the body is slightly inclined forward, and the feet must be placed firmly on the ground. If the slope is very steep, then it is necessary to ascend on all fours, holding onto grass or stable rock outcrops. In order to prevent slipping on steep slopes, if the scouts do not have special boots, wrapping the boots with rope or wire is recommended (Fig. 4).

When descending keep the knees slightly bent and step on the full foot or on the heels. When crawling along grass-covered slopes one should not grasp insecurely fixed objects. The descent is carried out leaning on the stomach or back against the slope, feet down (Fig. 5).

If the mountain slope is covered with rock or talus, scouts must be very careful and alert, since falling rocks may injure those below and, moreover, the noise of the falling rocks may attract enemy attention. On grass-covered slopes (especially after rains), and on ice-covered slopes the danger becomes even greater. If possible, it is wiser to avoid areas in the mountains which are subject to landslides.

In areas where danger threatens the scouts, they must take individual protective measures. A dependable implement for individual protection is the ice axe or an ordinary stake about 1-1.5 m long. With the ice axe (Fig. 6) steps can be cut into the ice to keep oneself from falling down the slope.



Fig. 3: "Zigzag" mountain ascent

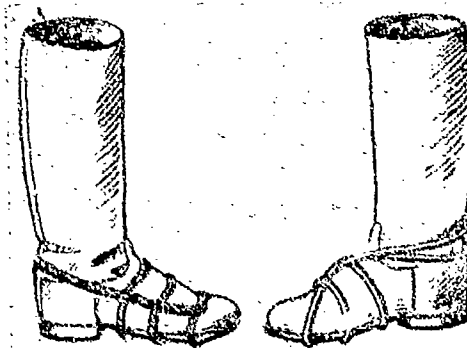


Fig. 4: Wire or rope boot wrappings

The small combat engineer shovel may be used for individual protection. The shovel may be used to cut steps in the slope, or be stuck into a crevice and the smooth handle used as a step.

Scouts may encounter cliffs as they pursue their assigned mission in the mountains. Traversing cliffs is exhausting, difficult and requires a

considerable amount of time. For traversing cliffs the most advantageous general direction is chosen, and hand and foot supports are chosen on the section immediately ahead. The hands are used to maintain equilibrium and as auxiliary supports. The traverse is made uniformly, slowly, without jerking and always keeping oneself fully supported. Before grasping a projection on the cliff, it is necessary to make sure it is safe, and only after this may one use it.



Fig. 5: Descent by crawling with back to slope

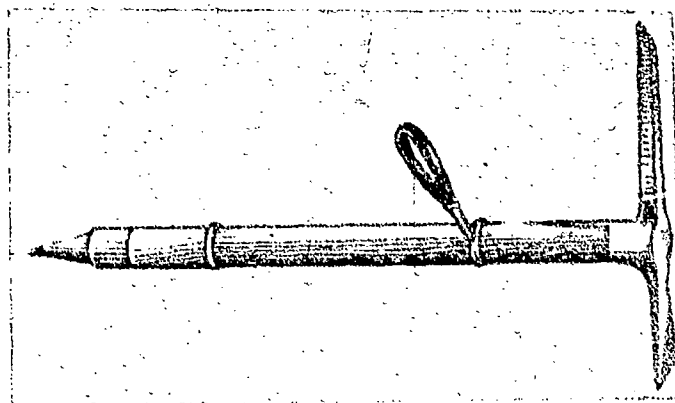


Fig. 6: Ice axe

On cliff sections where scouts are in danger of falling, they must tie themselves together with rope, with no less than three men per unit to insure each other's safety. In doing this the lead man must be the most experienced and the strongest physically, because he must select the method of traverse and the least difficult part of the route.

In crossing especially difficult section of mountains, scouts must free themselves of unnecessary weight. The distance between scouts moving tied together will be 3-5 m on the average.

During movement across steep or even sheer cliffs and on slippery sections, as a rule, the foot must be placed flat against the horizontal, inclined or vertical surface (Fig. 7), with the full weight directed perpendicular to the supporting surface.

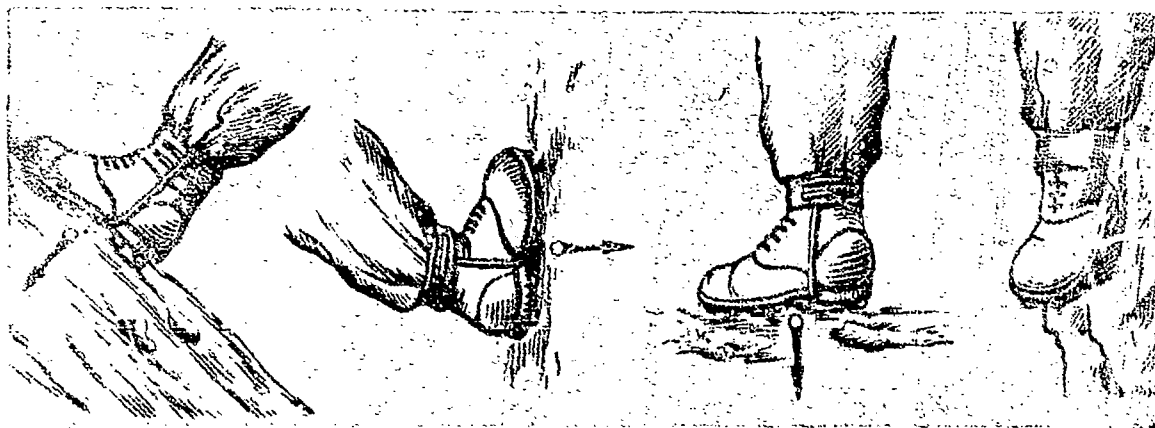


Fig. 7: Foot positions on rock footholds

For movements over steep slopes, or in ascending or descending cliffs, ordinary, but strong, rope may be used. The simplest method of ascent with the aid of a rope is step-by-step up the slope (Fig. 8). In descending, the rope is used this way: fold it in two, fasten it around a strong support at the top of the cliff and, holding the rope with both hands, lower oneself. In ascending a cliff, it is expedient to use a rope ladder (Fig. 9) or two rope stirrups (Fig. 10).

Icy slopes of 40-50° and over are climbed with the help of crampons and ice axe. For this, one must know how to use these means. Crampons must be put flat against the surface (Fig. 11), so that all of the spikes penetrate the ice. When climbing gentler slopes, the feet may be placed at an angle -- "herringbone style" (Fig. 12); on medium slopes it is convenient to move in "zigzag style" (Fig. 13); and on steep slopes it is best to go sideways, one foot below the other (Fig. 14).

In descending, the ice axe is used as a supplementary support (Fig. 15). During the descent, it is recommended that the ice axe always be kept at the ready; in case he falls, the scout may quickly turn on his stomach, by main force plunge the pick of the ice axe into the slope and hold it in this position until he has fully stopped (Fig. 16).

Steep, icy slopes may be negotiated by chopping out steps with the ice axe. If an ice axe is not available, steps may be chopped out with an

axe, an iron shovel or with any field expedient. Steps are cut by the lead scout in a staggered pattern; every little while the lead man is replaced by another.

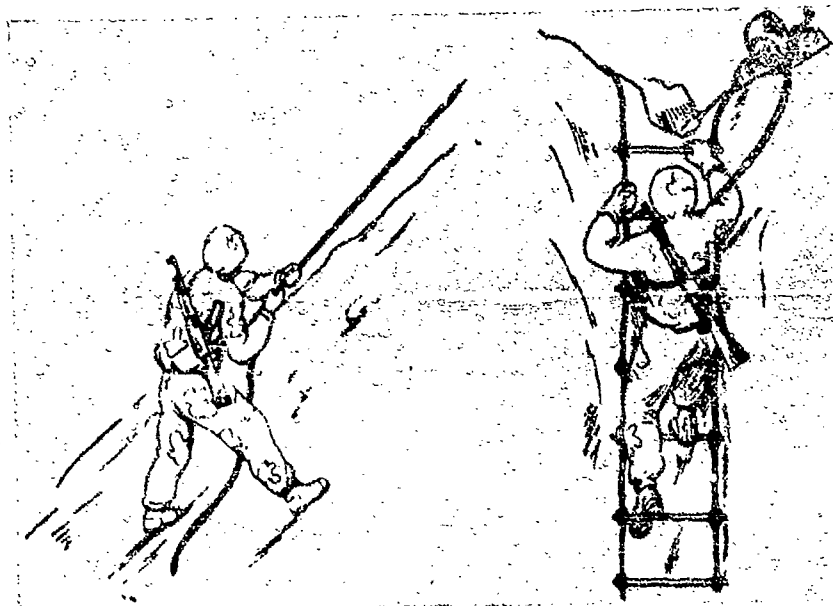


Fig. 8: Step-by-step ascent of a slope

Fig. 9: Ascent by rope ladder



Fig. 10: Ascent by two ropes with stirrups

Fig. 11: Foot positions with crampons



Fig. 12: "Herringbone"  
movement on icy slopes

Fig. 13: "Zigzag" ascent  
on icy slopes



Fig. 14: Sideways  
ascent of icy slopes.



Fig. 15: Use of ice axe  
for auxiliary support

Snow cover in mountainous terrain substantially increases the difficulty of scout actions. In such places as valleys, gorges and hollows, the depth may reach several meters; therefore, such places are very difficult to traverse. Moreover, on steep slopes snowslides and avalanches may occur. During winter in the snowbound mountains, ravines, cracks, rivers, holes and fissures are sometime covered with snow "bridges." When moving in such places every precautionary measure must be taken; the unreliable "bridges" must necessarily be crawled over, with hands and feet spread wide to increase the bearing surface (Fig. 17).



Fig. 16: Use of ice axe  
when falling



Fig. 17: Crossing a snow "bridge"

During clear weather in snow-covered mountains, the strong sunlight often causes sunburn and temporary blindness, which seriously interferes with the scouts in accomplishing their assigned missions. Therefore, in snow-covered mountains scouts must be supplied with special dark glasses and, to protect their faces from sunburn, special ointment. Among the field expedients for protecting the face from sunburn, or against frostbite in cold weather, the use of paper masks, made of newspapers (pages of newspapers or other paper, with eyeholes cut out) is recommended.

Off-road movement in winter on powder-snow-covered slopes is much more difficult; therefore, the scouts must have special training, as well as the ability to use skis, snowshoes and special mountain equipment.

A reconnaissance detachment must be driven hard, so that every man becomes a particularly well-trained scout, knowing how to ski well and being physically hardy, since the leader must maintain the proper direction of movement, and must give warning of danger which might be encountered during movement, and the last man on especially difficult sections must help others.

In moving across slopes covered with deep, loose snow or slopes overgrown with timber or brush, scouts are advised to use snowshoes.

The mode of skiing depends on the characteristics of different mountain reliefs. A gentle slope is ascended straight forward on skis, as is shown in Fig. 18; ascent of steeper, but shorter, slopes is done "herring-bone fashion" (Fig. 19). In ascending very steep slopes on skis, it is

necessary to go "sidestep" (Fig. 20). To prevent skis from slipping backwards on steep climbs, they may be bound with ordinary rope.

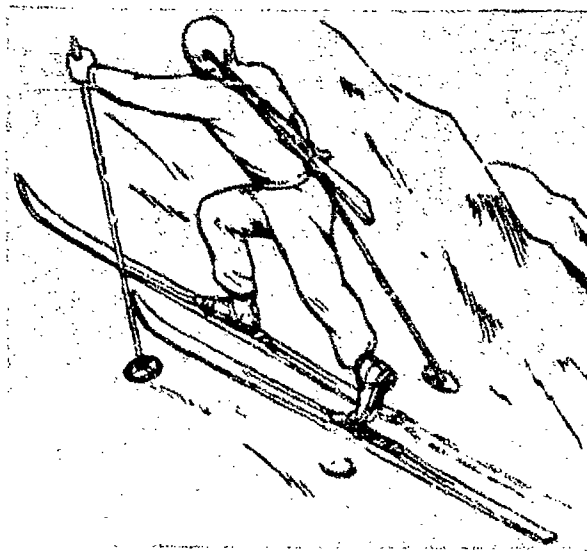


Fig. 18: Direct ascent on skis



Fig. 19: "Herringbone" ascent



Fig. 20: "Sidostep" ascent



Fig. 21: Braking by "snowplowing"

When descending slopes, one must stand almost upright, holding one leg forward. Braking on the descent is done with ski poles, either between the legs or to the side. The principal way to reduce speed when descending is by "snowplowing" (Fig. 21).

Scouts must pass quickly and with great caution by places where there is a danger of avalanches in winter.

When considering how to transport scouts in mountains, the use of armored personnel carriers or tanks in difficult sections is ruled out. However, in mountain areas where wheeled and tracked vehicles can operate, as a rule scouts will be moved by tank, truck or armored personnel carrier.

When moving the main force of a reconnaissance group or detachment in this way, for example, tanks will normally be at the rear of the column, for their mission, considering their limited maneuverability in mountain situations, will be principally to maintain fire on areas ahead of moving trucks, armored personnel carriers and motorcycles.

Successful conduct of reconnaissance in mountains using tanks, trucks and armored personnel carriers is possible if it is exceedingly well-planned, and if the drivers are complete masters of ascending, descending and hill-side driving, and driving where there is a scarcity of passing places and where antitank obstacles and defenses are found. When moving through almost inaccessible mountain areas, armored personnel carrier crews and vehicle drivers must have emergency supplies on their vehicles: tire chains, gravel to spread on the road, tow ropes, and wooden or metal chocks to put behind tank tracks or vehicle wheels when halted on steep up- or down-slopes.

Moreover, trucks and armored personnel carriers must have a full supply of bridging materials for crossing small gullies, irrigation ditches and canals.

The distance between motor vehicles and armored personnel carriers on mountain movements must be 25-30 m in level places, but in crossing passes or going up or down grades the distance increases to 100 m. When motor vehicles negotiate the more dangerous sections, personnel must dismount.

In preparing vehicles for reconnaissance action in mountains, the altitude must be considered, since the thin air in the mountains has a considerable effect on engine operation.

The reduction in atmospheric pressure with elevation above sea-level, which produces particularly great effects at altitudes above 2,000 m, causes a smaller cylinder intake, lowers engine power and increases fuel consumption.

#### Technical equipment and methods for crossing mountain rivers

During mountain operations, scouts frequently have to cross various water barriers.

During World War II there were many and varied military operations by Soviet Army units at water barriers. These operations, as a rule, involved crossing first by our scouts by a variety of means and insuring a successful forcing with a rush.

Scouts must be trained in methods and procedures of crossing any water obstacle. They must be able to wade across, fully clothed and carrying arms, and to use all possible field expedients for crossing. Crossing mountain rivers entails great difficulties, in connection with which they most often have to proceed through deep, wide canyons, which have very steep slopes and a very small number of passages. It is advisable to cross such rivers by air, that is to say, by helicopter, by amphibious vehicle or by self-propelled landing craft.

Decreasing depth and slower current speed are normal in wide places in rivers and their branches. These places are more convenient and accessible for wading across.

The presence of fords over mountain rivers is indicated by paths leading to the river and continuing on the opposite bank; fords may also be discovered by examination of the river depths, by the scouts themselves or with the help of local inhabitants.

Fording places can be chosen where the river is divided into several branches by islets; in such places the depth normally is not great and the current is not fast. Furthermore, a fording place must be chosen where the surface is calm, since in such places large rocks are usually found on the river bottom. The ford is crossed wearing boots over bare feet, so as not to injure the feet on rocks and to keep the socks (foot cloths) dry.

Fords over mountain rivers may be crossed on foot in the following manner (Fig. 22): individually, using a balancing pole (a); in pairs, clasping each other's arms for stability (b); in ranks of 3-5 men (c).

The method of crossing in ranks is carried out as follows: the scouts stand in one rank along the river flow, hands on each other's shoulders, and move in this way to the opposite bank. The man on the ends of each rank has a pole in his free hand for support and for probing ahead of him for holes on the bottom.

The "ring" method of crossing may also be used for crossing mountain rivers (c). By this method, 5-8 men clasp each other's shoulders, stand in a circle for greater stability against the force of the current, and cross to the other bank in the circle formation.

The crossing may be made in a column of ones (8-10 men). By this method the men must hold on to each other's shoulder straps or belts and move as shown in Fig. 23.

It is advisable to cross deep mountain rivers with very swift currents by helicopter or across the water by the following methods: using rocks

which stick out of the water, and the help of a rope strung across the river, step from rock to rock (Fig. 24); if the river is narrow and a sufficiently long and strong tree trunk is available on the bank, crossing may be made over the fallen tree trunk (Fig. 25); by aerial ropeway and breeches buoy (Fig. 26).



Fig. 22: Fording a mountain river

Key: a. Individually b. By pairs c. In ranks d. In "ring" formation

During river crossings in the mountains, a rescue station must be established downstream on the bank. The station must consist of two scouts, who must have a rope; one end of the rope is tied around the first scout, and the other is held by the second scout, in the event it is necessary to help the first one.

Crossing mountain rivers makes scout activities considerably more difficult; however, for well-trained, adroit and strong scouts the mountains are no obstacle, and mountain rivers are not impassable to them.

Up to this point, we have investigated the means by which scouts cross mountain streams when they are moving on foot.

However, if the conditions of mountain river channels permit, scouts will cross them in tanks, motor vehicles and armored personnel carriers. In such an event, the reconnaissance group will approach the river on a broad front. In order to carefully reconnoiter the river, the group commander

must send out observers. In order to accomplish this, scouts will dismount, leave their vehicles under cover, approach the bank under cover, determine the width of the river, current speed, bottom and bank conditions and select a convenient crossing place.



Fig. 25: Crossing in a column of ones



Fig. 24: Crossing over rocks

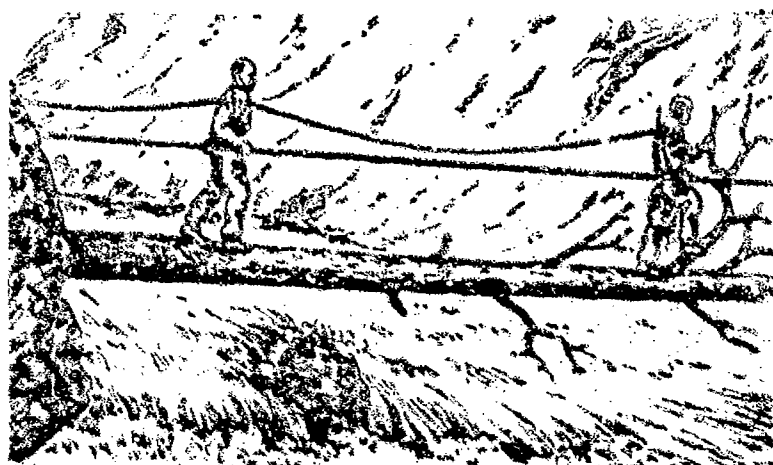


Fig. 25: Crossing by a fallen tree



Fig. 26: Crossing a high-banked mountain river using ropes

At this time combat engineers attached to the group must conduct an engineering reconnaissance of the river. They must also verify that there are no mine fields on the bank, and use a pole to probe the depth of the river near the bank.

When the reconnaissance group commander is personally satisfied that the opposite bank holds no enemy forces or an insignificant enemy strength, he may organize the crossing of the whole group.

If the group is transported by amphibious tanks and has its own complement of motorcycles, the order of crossing may be as follows: motorcycles are ferried across on the amphibious tanks; special fastenings have been previously installed in the tanks for this purpose. Three lugs are installed in the amphibious tanks: one is fastened to one of the bolts on the

left side of the hatch under the fuel tank; the second -- by the second bolt on the rear section of the radiator cover; the third -- any bolt in the rear section of the hatch on the transmission box cover.

Every motorcycle is fitted with three ropes, 65-70 cm long, by hooks on the front and rear and by a turnbuckle in the middle section. In addition, the motorcycle wheels are blocked by wooden chocks. In this position, motorcycles can be not only ferried across water obstacles, but can be transported into poorly accessible mountain regions.

### Orientation in mountains

Orientation means to find one's position in an area (where one is or direction of movement) relative to the horizon and to landmarks. Scouts can orient themselves as under usual conditions, that is, by map, compass, sun, watches, stars, moon, Milky Way, terrain features and azimuth.

However, orientation in the mountains has its own special, harsh difficulties. Fulfilment of an assigned reconnaissance mission depends to a great extent on skill in orienting oneself, holding a given direction and not getting lost. Orientation in mountains by landmarks is so difficult that to move a great distance without a compass is almost impossible.

Orientation in the mountains is by peaks, ridges, saddles, prominences, cliffs, roads, trails, separate large rocks, rivers, groves or some especially prominent feature (slopes, glades). Occasionally such terrain details become exceedingly important signs for orientation. For orientation on the plains, there is recourse to relief details less often, and in the mountains, more often. However, without sufficient practice it is difficult to understand one's situation in the mountains. Mountains very much decrease the distance one can see: sometimes it appears that a mountain is close at hand, when in fact it takes several days travel to reach it. A familiar peak, if one sees it from different directions, changes its outline to something unrecognizable. The field of vision in some places is great, in some places very restricted; a reference point is often lost to view. Therefore, when moving in mountains it is necessary to note the alignments of intermediate reference points and march toward them as toward a lighthouse.

In mountainous terrain there are many good reference points and indicators by which a scout may orient himself, determine his location and move precisely in a given direction.

Thus, for example, there will be more snow on northern slopes than on southern; rocks are moss-covered on the northern side; on stumps the annual growth rings are closer together on the north side and wider apart on the south; the bark on the north side of trees is rougher and more heavily covered with moss; the leaves and branches on isolated trees will be heavier and longer on the south side; in winter snow sticks more to the north side of trees and melts more quickly on the south side.

For orientation in the mountains, especially in sharply broken terrain, where visibility is limited, terrain notes must be made as one moves, if the return is to be by the same route.

During movement by azimuth in the mountains, it is very difficult to maintain a given direction, since magnetic anomalies are frequently encountered. Therefore, during movement by azimuth it is necessary to stop and verify the direction of movement more often.

Experience in mountain reconnaissance operations in past wars confirms that, for proper orientation one may use various signals -- light and color flares, smoke pots and fires. In using flares it is necessary to select a combination of colors which cannot possibly be confused with flares set off by the enemy or by one's own forces.

Before setting out on mountain reconnaissance it is necessary for all scouts to learn thoroughly on the map the area of the coming operation, so that they memorize the coordinates of characteristic landmarks, both on the march route and in the coming operations area.

The use of local inhabitants as guides should not be denied while learning the terrain, but this should be done only after thorough verification of the loyalty and integrity of one or another of the local people.

Experience in World War II furnishes many examples of scouts who were on mountain operations and found themselves in difficult situations only because they did not know the terrain well enough and were not trained in mountain orientation.

Let us take such an example from the operations of a reconnaissance group in the enemy rear. In the summer of 1944 a seven-man reconnaissance group was dropped by parachute into one of the mountainous regions of Carpathia with the mission of spying on the approach of enemy reserves to the front lines. The drop into the designated area was carried out at night by parachute. However, after landing, the group did not assemble all in one place and, most important, the group found itself without a radio operator, who could not be found, despite a search. Thus, it turned out that the scouts, having valuable enemy information and no radio transmitter, could not send the information back to the headquarters which sent them out.

After completion of an offensive operation by our forces, the group was returned (together with the radio operator) to its headquarters. As it turned out later, this was the result of the fact that the radio operator did not know how to orient himself in mountainous terrain. While the group was preparing for the operation in the enemy rear, insufficient attention was given to learning about the region of the coming operation and to orientation in mountains. Therefore, when the men landed in the designated area of operations, the radio operator became separated from his group by 1.5 km, lost his way and could not return to the previously designated spot.

The foregoing example is a graphic demonstration of how tremendously important it is for scouts to know very well how to orient themselves in general, and in mountains in particular.

#### Uniforms, equipment, weapons and ration supply for scouts in mountains

In addition to the general training of scouts for mountain operations, they must also learn the characteristics of uniforms, equipment, weapons and ration supply, since these questions affect mission accomplishment to a considerable extent.

Scout uniforms for mountains must be light, tough, comfortable, and in winter must be sufficiently warm. Overcoats are very awkward for scouts in mountain operations, so that it is best for scouts to wear jackets. They are light, warm, close-fitting and do not hinder movement. The jacket is advisable for summer and winter.

Summer trousers must be the regular ones, that is to say, wide trousers of current design. It is best for underwear and socks (foot cloths) to be flannel or wool.

No less important is the question of headgear. The winter cap with ear flaps for winter operations is good for all conditions, but during snowstorms and heavy frost it is necessary to wear a wool liner also. It is very comfortable, close-fitting around the face; it protects the ears, neck, and parts of the face very well from wind and frostbite. The panama hat is the most convenient and practical headgear for the mountains in summer.

The regular fur-lined mittens are best for the hands.

Footwear for scouts in mountain operations must also be light, strong, comfortable and warm. The current pattern of boots and high shoes is fully suitable for footwear in the mountains. For warmth in winter, as well as to insure silent movement in boots, special stockings made of felt cloth and tied around the ankles with string or thongs may be worn.

#### Armament

Scouts operating in mountains must be armed with submachine guns, grenades, trench knife, binoculars, signal flares and lanterns.

#### Equipment

For operations in mountainous terrain scouts place no little importance on having the necessary equipment.

Personal mountain equipment includes ice axe, hiking stick, special mountain boots or snowshoes, chest belt, mountain knapsack, and protective

glasses. If special boots or crampons are not available, regular boots may be wrapped with rope or wire, or nails may be driven through the soles or heels.

In especially deep snow scouts must have skis or snowshoes. If there are many mountain rivers on the route or in the reconnaissance area, scouts must have individual crossing gear.

As is evident from the list above, for operations in mountains scouts must have a considerable amount of special mountain equipment for individual use. All of this equipment must be properly adjusted, so that it does not hinder fulfillment of the mission.

Considering the nature of scout operations in mountains, it is necessary to have an efficient organization for feeding and observation of water discipline. In order to replenish the great expenditure of energy, food must be nourishing and have a high calorie content.

Drinking water discipline must be observed during feeding. Because of the heavy burden of mountain operations, the body loses a great deal of moisture. This amount of moisture must be replenished at halts (morning and evening). At these times enough water may be drunk to quench thirst. It is not recommended that much water be drunk during movements, since this increases the load on the heart and increases perspiration. On the march a few swallows from the canteen may be gargled. Much cold water cannot be drunk, since this has a harmful effect on the body and causes serious colds (inflammation of the upper respiratory tract).

#### Organizing rest for scouts in mountains

Because of the difficulty of movement through mountains, scouts must have recourse to rest stops.

Sites for scouts to rest must be selected and arranged with consideration that the rest must be protected from all weather conditions and from any unpleasant natural phenomenon.

When the scouts are setting up their bivouac at the halt, they must avoid places where there is danger of an avalanche, rockfall or landslide, that is to say, to avoid overhanging cliffs and the feet of snow-covered mountain peaks and ridges.

It is necessary to hide thoroughly the place chosen for rest in the surrounding terrain, to organize observation and security, as well as to insure quick battle readiness in case the enemy appears.

The wind blows constantly in the mountains; therefore, it is necessary to pick places which are protected against strong, cold winds. Natural cover is used: holes, hollows, depressions, free-standing rocks, salients in rocky areas and so forth.

It is more advantageous and safer to stop for halts in woods and in groves, since they provide a safe cover against enemy observation and protect against mountain winds. In unforested regions, rest locations must be selected on mountain spurs, terraces and platforms.

If tents can be pitched at the halt, they must be pitched on level, dry spots. Tents must be located so that the wind does not blow into them and to insure free access and exit. In woods, small branches or grass are spread under the tent.

If possible, caves in cliffs and horizontal dugouts ought to be used for rest. Such natural shelters are very good: they are convenient for rest stops and take almost no time to prepare.

There are frequent storms in the mountains; therefore, in setting up the rest area this circumstance must be considered and, if possible, all metal objects should be stored outside the dugout, undershelter in storms.

It sometimes happens during mountain operations that scouts are forced to stop. This may come about because of a sudden, sharp deterioration of the weather, heavy overworking of the scouts or the approach of darkness. In such an event, in setting up the rest area it is mandatory to put on dry underwear, wrap the feet in a knapsack and to cover oneself with a shelter half.

When stopping in snow a small depression (hole) must be dug.

During a forced stop, local security must be established and guards must be detailed from among the resting scouts; in the event of particularly bad weather (heavy frost, violent snow storms), at specified times the guards must awaken the others and all are required to do warming-up exercises.

Signs of great fatigue in a man are pale skin, rapid pulse (over 120-150 beats per minute) or, on the other hand, a slow, hard-to-feel pulse, cold sweat, shallow breathing and general weakness. When these signs appear, if it is possible to stop, the men must be permitted a short stop, or sometimes a prolonged stop.

Sometimes the scouts find themselves in one place for a long time (in reserve, in defense, on a prolonged operation in one region of the enemy rear); therefore, arrangement of the bivouac becomes a special concern for their commander, especially in winter.

During prolonged bivouacs in mountains in winter, it is best to use tents. However, tents will not always be available; therefore, scouts will have to build themselves various kinds of shelters, such as holes in the snow, caves or snow huts or tents from available materials.

Tents must be pitched on level spots; on one side they butt up against a wall or cliff, on the other side a wind-break may be built (Fig. 27).

It is recommended that tent bottoms be lined with bunches of grass, moss or branches.

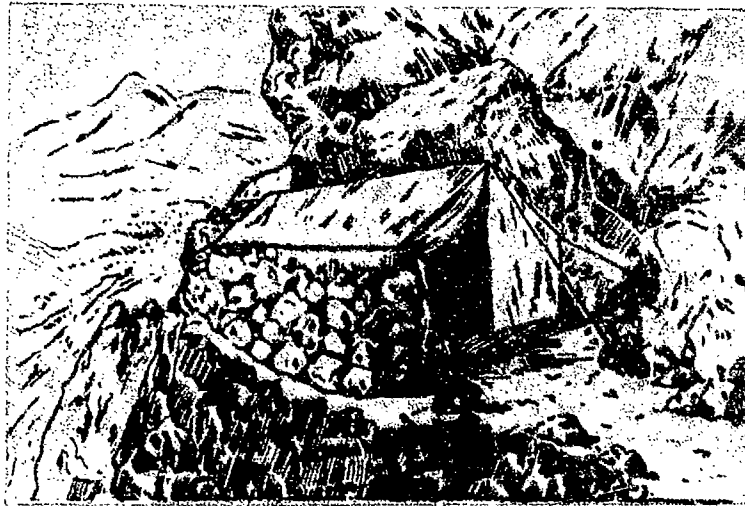


Fig. 27: Tent equipped with a windbreak

Snow pits of the simplest construction are made in snow. The depth and width and length of such pits must be no less than 1 m. The snow pit may be covered with a s lter half and camouflaged with snow (Fig. 28).



Fig. 28: Snow pit

For more prolonged stops when there is a great amount of snow, snow caves (Fig. 29) and snow huts (Fig. 30) are built. When the snow is loose and crumbly, walls may be built by putting snow in place and compacting. If the snow is dense, then snow bricks may be cut out of it with a shovel and water may be poured over it for strength. Roofs may also be made from snow bricks. Huts may be covered with skins and poles, then with

shelter halves and all of it covered with snow. A hut for 3-5 men will have these dimensions: length and width, 2-2.5 m; height, 1.5-2 m.



Fig. 29: Snow cave

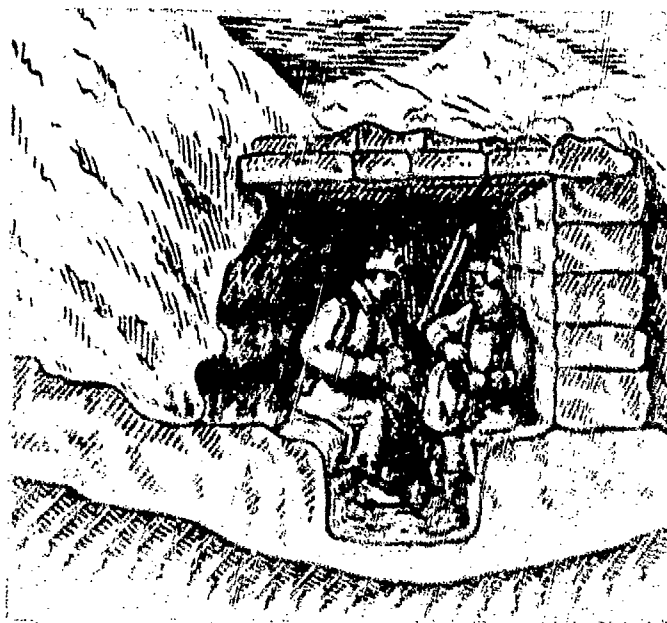


Fig. 30: Snow hut

In forested mountains, if conditions permit, a sleeping place may be prepared by kindling a fire. To do this, the fire and hot coals must be removed and tree branches or straw spread in their place. Warming the ground for several hours retains the heat, allowing the scouts to rest well.

Under all conditions, when scouts are resting in the mountains, safety requires the organization of a perimeter defense, which will prevent sudden enemy attack.

If scouts operate in mountains in tanks, motor vehicles and armored personnel carriers, and they stop for a prolonged period, it is necessary that maintenance schedules of all equipment be strictly observed, so that they may be prepared quickly for military action at all times.

#### Organization and conduct of reconnaissance in mountainous terrain

Reconnaissance -- the most important aspect of the security of troop combat operations. It is conducted by all combat arms, special arms and services with widespread use of technical means.

The character of modern war, using nuclear weapons and other means of mass destruction, has sharply increased the role and significance of reconnaissance, so that demands on it are greatly increased today.

In order to defeat the enemy, it is necessary to know accurately where he is, what he is doing, the character of his defensive installations and obstacles, and what operations he intends to launch. Only under these conditions is it possible to correctly calculate where, with what and how to defeat him. Only a thorough, active, unceasing and purposeful reconnaissance makes it possible to insure the receipt of such intelligence.

The reconnaissance effort in mountains must be directed towards disclosing the principal dispositions of the enemy forces, ascertaining the presence of enemy means of nuclear attack, revealing parts of the terrain which are contaminated with radioactive materials and searching for ways of by-passing contaminated areas. Moreover, scouts in mountains must find exposed flanks and gaps in enemy battle formations.

Also of great significance is terrain reconnaissance with the aim of establishing its degree of passability for military units; of first importance is the location of passes (crossings), defiles, gorges, heights, roads and trails, ascents and descents, springs, the presence of construction materials and fuel, and the presence of rivers and their fordability. During reconnaissance special attention must be given to disclosing hidden approaches which lead to the enemy flanks and rear and those of our forces.

The characteristics of mountain relief and climate have a substantial effect on the organization and conduct of reconnaissance in mountains. Scout operations in mountains are accompanied by great difficulties, since units on reconnaissance almost always operate in isolation from their own forces and in complicated situations. Courage, perseverance and great efforts of physical and moral strength are required of every scout.

However, no difficulty can prevent a scout from accomplishing his mission. In order that nothing may distract him, he must think only of one

thing -- the precise and timely fulfilment of the orders given by his commander.

Sharply broken mountainous terrain provides excellent conditions for secret reconnaissance unit operations, and for penetration to the enemy rear with the aim of conducting reconnaissance, destruction of enemy nuclear weapons and sudden attacks on headquarters and communications centers.

In mountains the continuity and timeliness of reconnaissance takes on increased significance. Timeliness means gathering and sending reconnaissance information to the commander by the specified time. This makes it possible for higher headquarters to make a timely decision and to effectively use proper weapons. This same valuable information turns out to be useless if the commander receives it late or delays in making a decision. The time factor in reconnaissance takes on a decisive importance.

Reconnaissance must be conducted ahead of, deep behind and to the flanks of the front lines. At the same time it is necessary to be thoroughly prepared to fight enemy scouts within our positions, so as to prevent enemy saboteur-reconnaissance groups from freely penetrating our positions and to localize their operations in a timely manner.

Depending on the passability of mountain areas, reconnaissance may be conducted in tanks, motor vehicles, armored personnel carriers and on foot. In mountains where passage is difficult, especially in rocky areas, reconnaissance will be conducted primarily on foot.

Reconnaissance in mountains uses the same methods as in level areas, that is to say, observing, listening, raids, ambushes, dispatching reconnaissance detachments, reconnaissance groups and small combat units, with the wide use of available means of technical reconnaissance. However, just as conditions of conducting reconnaissance, so the use of reconnaissance means in mountainous terrain has its own characteristics, which must be considered during scout training and in their activities in mountains.

Conduct of reconnaissance in mountainous terrain by various means in basic types of operations is examined below.

#### Reconnaissance methods in mountains

##### Observation

Under modern conditions, notwithstanding the powerful technical means with which the forces are equipped, reconnaissance by observation has not lost its significance.

Observation is one of the basic means of conducting reconnaissance in all conditions of combat, at any time and at any place.

During World War II observation provided about 40% of all intelligence of the enemy in his primary defensive zones.

Today conditions for conducting observations, in comparison with those of past wars, have changed considerably, since reconnaissance units are equipped with various technical reconnaissance means, with which they may conduct observation night and day, under various conditions of visibility.

In mountains observation is also one of the most widely used methods, since under similar conditions reconnaissance by other means becomes more difficult, and in some regions (rocky mountains, passable with difficulty) operations of maneuvering reconnaissance organizations is almost impossible.

The forms of mountain relief, and large forests in mountains as well, do not permit one observation post to observe terrain to such a great depth and width as is possible on level terrain. It frequently happens that from one observation post it is not possible to see all of the forward slope of even one ridge.

In organizing mountain observation the desire to establish one high place for observation (observation post) is not always justified, since the summits and ridges merge into one whole and create a misleading impression of continuous visibility. By the same token, if one of the dominating ridges is climbed, a first glance gives the impression of very good visibility, when in reality only one crest is visible, while behind every twist in the slope, perhaps barely a few meters from the observation post will be unobservable space. In such places the enemy may quietly approach the observation post without being noticed.

In forested mountain terrain a great number of unobservable natural places (gorges, precipices, fissures, cliffs, ravines), in combination with large forest tracts and separate groves, which cover the mountain slopes, severely limit the view of forward areas and complicates the execution of the observation mission. Therefore, in mountains helicopters are widely used for observation of the enemy and the terrain from one's own positions.

It is considered that, if even the most favorable observation place (observation post) is chosen in mountains, it is possible to observe a maximum of 35-40% of the forward terrain from it.

In order to draw correct conclusions from the observation data on some objective discovered, it is necessary to observe, not from one, but from not less than two observation posts, since observation from each of them discloses a different panorama.

Low clouds and heavy fog are fairly frequent phenomena in mountains. This severely restricts observation and sometimes makes it impossible, because thick fog restricts visibility from time to time to only a few meters. Clouds, when the weather is calm and the air currents weak, will be so immobile that they will cover particular places for very long periods of time.

In forested mountains during windless weather, especially in hollows, smoke from gunfire dissipates so slowly that it also impedes observation.

It is necessary to consider that mountainous terrain is very deceptive, since deep hollows and ravines conceal distances, with the result that features and objectives appear closer than they really are.

The features of forested mountain terrain enumerated exert an influence on the organization and conduct of observation.

#### Organization of observation

Depending on the kind of combat, observation is conducted from stationary observation posts and command observation posts (in defense), as well as from armored personnel carriers, tanks and motorcycles on the move (in attack, on the march, in meeting engagements and during pursuit of the enemy), by unit commanders personally and by assigned observers and observation posts. When observation cannot be conducted on the march, observers dismount (from tanks, armored personnel carriers and so forth) and conduct observation from hidden places in these cases.

There is a greater number of observers and observation posts under mountain conditions than during operations on level terrain. They are positioned not only along the front, but are echeloned vertically, so that observation may cover the entire forward area. Sometimes it is advisable to post observers and observation posts in adjoining sectors, if individual areas cannot be seen from one's own positions. In forested mountain terrain only an all-around and many-level system of observation will insure the best conditions for observing the terrain.

Observation sectors must overlap each other and cover the entire forward area. Particular attention must be given to the flanks and to gaps between units.

Under nuclear warfare conditions in mountains, defenses are established on individual hills in the absence of adjoining flanks. Attacks also will not take place along the entire front, but will be directed toward the enemy flanks and rear. Because of this, our flanks and rear, both on defense and offense in mountains, are most vulnerable to turning and envelopment by the enemy. Therefore, observation posts must be organized both to the front and flanks and in the rear of our forces. This gives the possibility of excellent observation of the terrain, especially of hidden approaches, roads and trails, and will prevent the unexpected appearance of the enemy.

In organizing observation it is necessary to account for, in addition to relief, specific mountain climate conditions: mist in the valleys, low clouds, frequent rains in many areas in summer and snowfall in winter, sharp temperature variations and changeable weather.

Experience in mountain military operations in the Caucasus, Carpathia, and experiences in post-war military exercises shows that organization of observation in mountains must be approached skillfully and cautiously.

Observers and observation posts must be stationed on dominating heights with great horizontal visibility and few areas of no visibility. However, it is not always necessary to be in a hurry to pick the very highest point for an observation post, for sometimes from it one may only observe distant approaches, while observation of closer approaches may be restricted. Therefore, for first-class observation it is necessary to select posts which are distinguished by good near fields of view. For observations under foggy and cloudy weather conditions, as well as at night, observers must pull back to the foot of the ridge.

As stated above, mountain observation to the front is restricted by the sheer force of the terrain characteristics. Therefore, if on level terrain, in order to observe a particular zone, one or two observation posts are sufficient, to observe a similar zone in mountainous terrain the number of observation posts must be no less than three or four.

In selecting sites for observation posts, in addition to a sufficiently wide field of view, it is necessary to locate existing ground cover which will protect from enemy observation and fire, and especially from his nuclear weapons.

Mountainous terrain may be observed by separate sectors, looking along passes and ridges. Hollows which cut into ridges may well be observed from neighboring ridges. Posts for observation of gorges must be located opposite the upper parts of the gorges.

For timely detection of enemy reconnaissance which is trying to penetrate our positions, it is necessary for individual observation posts to move closer to the enemy (in front of our forces). Such observation posts must be especially well hidden and covered by fire from friendly units. In view of the presence of a large number of hidden approaches in mountains, it is necessary to take measures to prevent sudden enemy attacks on observation posts. With this aim, it is necessary carefully to lay out approaches to the observation post, and, if time and terrain conditions permit, to erect obstacles along them.

In selection of sites for observation posts in mountains, it is necessary to take into account a series of requirements also.

Observation posts must be in the most important directions. They must have the widest field of view over the terrain along the front and in depth. Observation posts should not be established on the immediate tops of mountains, on sharply outlined terrain features; it is better to locate them on slight slopes a little distance from the peak.

In addition to the main observation post, it is necessary to have a few auxiliary posts in the mountains, for the observation of important terrain areas which cannot be observed from the main observation post.

The distance between observation posts and the forward units of our forces depends entirely on terrain conditions. Main observation posts may be located at distances of from 1 to 3 km, and the forward ones -- 200-500 m from the enemy. In individual circumstances they may be sent out even further, almost up to the enemy forward units.

The number of observers in observation posts of units depends on conditions and mission in every individual case; however, in mountainous and forested mountain terrain, in view of the complexity of observation and organizing a many-level system of observation, as well as in view of the large number of defiles, the number of observation posts and observers will be two or even three times greater than on level terrain.

Observation posts and individual observers may fulfil the following main missions in mountains:

- to detect the enemy and learn his strength in a certain sector;
- to reveal enemy weapons -- artillery, mortars, machine guns, tank locations, enemy observation points, night vision instruments and means of illumination;
- to establish the location and nature of enemy engineer and chemical obstacles;
- to watch enemy behavior and to detect signs of preparation for, and launching of, nuclear, chemical and bacteriological attacks;
- to watch enemy movements on roads and trails and in hollows, and the activities of his scouts;
- to define sections contaminated with radioactive and poisonous substances;
- to learn the nature of the terrain, both in enemy and friendly positions.

The mission of observers or observation posts must be set only in localities and, as a rule, sites from which observation can be conducted. Before starting observation in mountainous terrain, observers must be oriented, have populated places in forward areas pointed out to them, if they are visible, be shown where every path goes, and be given the conventional names of various points in the observation sector (ridges, peaks, gorges, rivers and so forth); for example, "Gorbataya" ridge, "Verblyud" peak and so forth.

Then observers are told who the enemy is, what he is doing or where he might be expected, are shown their observation site and procedures for setting it up, sector (objective) of observation, what to pay special attention to during observation, and when, by what means and to whom to send the results of observation.

#### Equipment for observation posts

Observation posts in mountains are arranged with a view to the importance of having a good field of view toward the enemy and toward the flanks, as well as for necessary protection from all kinds of fire, especially nuclear weapons.

In selecting an observation site, it is necessary above all to study in detail the folds in the ground and terrain features. This is necessary, not only for better use of the terrain for concealment, but mainly for protection, particularly against enemy use of nuclear weapons.

It is known that, in a nuclear explosion, observation posts on open terrain are struck with greater force by the shock wave, light radiation and penetrating radiations. Woods, ravines, gorges, reverse slopes of mountains and other terrain features significantly decrease the damaging effect of nuclear weapons. Mountains have a screening action, that is, the ability to deflect the shock wave as it spreads. Thus, at the moment of a nuclear explosion very safe zones are formed, which must be taken into consideration when selecting the site for an observation post.

The safest place for sheltering observers is a well-built entrenchment. In an entrenchment, the safe distance from the epicenter of a nuclear explosion is decreased by 1.5-2 times and the area of damage -- 2-4 times. In a well-built entrenchment, the danger of being affected by the shock wave is significantly decreased, and the harmful effects of light and penetrating radiations is sharply decreased. Therefore, setting up an entrenchment for an observation post must be given special attention, although known difficulties are experienced in this, since in mountains the removal of every meter of rocky soil is hard to achieve. In mountains, rocks may be used to conceal and set up an observation post; breastworks are made of them, then covered with earth the color of the surrounding terrain. Observation post roofs may be made of available wood. A roof made of wood or stone up to 25 cm thick and covered with earth up to 15 cm thick, may reduce the radiation dose by from 2 to 4 times and give reliable protection against light radiation at the moment of a nuclear explosion. The walls of the entrenchment are revetted with poles or lined with rocks, so that the entrenchment gives a considerable degree of protection against destruction. In addition, special niches are made in the entrenchment where the observation post is to be set up for sheltering arms, ammunition and optical gear.

In mountains, reliable protection from all kinds of fire, including nuclear weapons, is provided by crevices, overhanging walls, caves and near the crests of reverse slopes; therefore, in selecting and constructing

observation posts, this natural cover may be used. Moreover, it is very convenient and advantageous to construct observation posts from rocks and boulders on rocky slopes. Such observation posts blend well with the surrounding mountainous terrain.

Scouts must not only build observation posts well, but they must conceal them skillfully.

Under all terrain conditions, approaches to observation posts must be selected which are not observable by the enemy. It is not recommended that new paths to observation posts be made. In any event, a scout must consider thoroughly the situation, enemy behavior and terrain character, and be sharp-witted, resourceful and cunning in building and concealing the observation post pointed out to him. Unimaginativeness and carelessness in such a place usually leads to misfortune.

In mountainous and forested mountain terrain, particular attention must be paid to building dummy observation posts. Here is an example from World War II. In the mountains on one sector of the front a dummy observation post was built (battery commander's telescope with a dummy in a tree). This dummy observation post "came to life" several times a day, especially when our artillery was firing. The enemy wiped out the observation post, spied on its operation and launched a fire raid against it, firing about 300 rounds. During this time, our artillery scouts successfully wiped out an enemy firing battery.

Every observation post must be equipped with all necessary means of observation, including technical means of observation, to permit observation at a great distance and under all conditions of visibility and night. However, it must be remembered that the sharply broken relief of mountainous terrain makes observation with night vision instruments very difficult.

#### Duty in observation posts in mountains

Observation in the mountains, just as on level terrain, is organized for all types of troop military operations, and is conducted without interruption, day, night, all times of the year and under any conditions. Observation is conducted personally by the detachment commander, by observers and posts.

Observation posts (observers) are designated for observation of sectors and, sometimes, separate objectives. Separate observation objectives are specified in circumstances when necessary detailed information of previously discovered objectives in enemy positions is needed, especially on the enemy's means of delivering nuclear weapons, their movement, their disposition in a position and so forth.

An observation post prepares an observation diagram, which is entered in the observation journal, and all resulting reconnaissance data is plotted on a map or on the diagram. The place from which observation is conducted,

the observation sector, reference points, their number, names and distances are plotted on the observation diagram.

For conducting radiological and chemical reconnaissance, observers are equipped with instruments which permit the detection of radioactive and poisonous substances in the air or on the ground.

A study of the forward terrain in mountains must begin with the largest features and move step-by-step to the smaller ones.

It is expedient to have a plot of invisible areas in every observation post, which every observer studies carefully and from which he determines which approaches and defiles cannot be observed and how the necessary supplementary observation over them is organized.

In mountains the enemy, as a rule, moves along the roads, valleys and trails which wind across mountain slopes and which, because of the sharply broken terrain, may only be observed in isolated parts. However, there will always be passes or crossing places which are almost impossible to hide from the eyes of observers. The observer's task -- to find such passes in his sector of observation and to fix particular attention on them. By continuous observation of these places, it is possible to determine the strength and composition of the moving units and the enemy's technology, and to disclose his intentions.

In mountains, on no account must one relax observation over places which, on first glance, appear impassable, but which at the same time are passable for well-prepared small groups, particularly enemy reconnaissance groups. For this reason, as well as because the best observation posts are at a considerable distance from our forces, their safety must be insured, and all-around observation must be organized and conducted.

At night, observation in mountains is reinforced by sending supplementary observers into the valleys and hollows, because night observation upwards against a cloud background gives much better results.

Information obtained by observation of the enemy and terrain, only if it is of value, must be sent from the observation post, if it is to be reported to the commander in time. Therefore, organization of communication between the commander and the observation posts has considerable significance. Communication may be by signal, messenger, telephone or radio. However, under modern conditions, when information is sent, especially information about enemy nuclear weapons, it must be sent quickly, best of all being communication between the observation post and the commander by radio or telephone.

In this section, the features of organization and conduct of reconnaissance in mountainous terrain only have been considered; however, it must be remembered that the basic requirements apply equally to organization of reconnaissance under normal conditions and in mountainous terrain.

A site for observation (observation post) cannot be selected close to a strongly pronounced reference point or on a hill crest. For this, occupying a site near a terrain feature, observation should be conducted from the shady side of the feature.

When locating in a tree for observation, the thickest and most branchy trunk, covered with dense branches, must be chosen; it is not recommended that a tree with birds' nests be chosen (the cries and flight of frightened birds may betray the observer's location).

The terrain in one's observation sector must be studied thoroughly, so that every change in it will be noted (the appearance of new bushes, rocks, hummocks and other objects); this helps reveal enemy ruses and stratagems.

For the best terrain study of the observation sector, mentally marking it out in zones by depth -- nearest, middle and distant -- is recommended. Observation is conducted from right to left by zones. Terrain study in the attack begins with the nearest zone and in defense -- with the distant.

#### Listening in mountainous terrain

At night, observation in mountains is supplemented by listening. Mountains favor this type of reconnaissance, since sounds in mountains, especially in fog, near rivers and in the presence of snow cover, are reinforced, and not only at night, but after rain, in the early morning hours, and even on sunny days when the humidity is high.

The abundance of defiles and hidden approaches increases the importance of listening at night in mountains. Various sounds created by troop movements and construction of defensive works may be heard at a considerably greater distance in mountains than on the plain; consequently, the noise of motor vehicles and tanks more easily establishes the enemy's preparation for active combat operations, change of position, areas of troop concentrations, the site and nature of engineering works and other information which can supplement intelligence obtained by other reconnaissance methods. However, when organizing night listening in mountains, it must also be noted that sounds can be deceptive. Sounds striking woods or mountainsides change direction, and sometimes appear to come to the scout from the direction opposite that of the actual source of the sound.

As a rule, listening is done by observation elements; in addition, a listening post composed of two or three scouts may be provided from the company. In this case, it is advisable that the composition of the post include a scout who knows the enemy language.

The results of listening are reported at specified times; but such intelligence as, for example, preparations for enemy attack or for nuclear or chemical strikes, as well as enemy withdrawal from an occupied position, is reported immediately.

Forested mountain terrain allows hidden approach almost to the immediate vicinity of the enemy, and conduct of listening without being noticed. However, not every scout is able to cope with this mission. Therefore, selection and training of scouts in listening must be given the most serious attention.

What are the requirements for this category of scout?

First of all, the scout-listener must have exceptionally good hearing, so that he can determine the nature and source of the slightest sound. But this is not easily done. For example, not every scout can distinguish by sound the noise of a tank motor, tractor motor and so forth, or determine from the rate of fire the kind of machine gun.

One of the most important qualities of a scout chosen for listening is his ability to orient himself under conditions of restricted visibility and his ability to analyze and summarize what is going on. It is a poor scout who, hearing one sound or another in enemy positions, cannot find its source and distance away. This is a hard task. He must remember well each sound, so as to properly inform the commander. Consequently, a scout selected for listening must possess an exceptional memory. This is all the more important since reconnaissance data obtained is not sent to the commander immediately, but after some time interval, in most cases.

In order to recognize the sounds of enemy activity, the scout must know the characteristics of different sounds. Thus, for example, infantry movement makes a deep, uniform noise. A sharply interrupted, metallic roar and motor noise -- sign of artillery movement. The movement of tanks is accompanied by an uninterrupted metallic rumble of tracks and sharp motor noises. When a tree falls, one hears a crash to the earth and snapping of twigs and so forth. This is how, by the characteristics of noises, scouts can determine the nature of enemy activity.

Scouts chosen for listening must be patient and perseverent in attaining their assigned goal.

Especially thorough concealment is necessary while listening. Sometimes the enemy may open provoking fire towards location of the scouts (listeners). In such an event, for every scout the strict requirement must be: "Freeze!" To move at such a moment and even more, to return fire, is categorically forbidden; this might ruin the entire operation.

In one's experience he may have heard of a similar situation in which one reconnaissance group found itself in the Carpathians during World War II in 1944, when sent on a listening mission in the mountains.

The group, carrying out its assigned listening mission, took up position in mountains next to the enemy forward defense area by night. Suddenly, from the direction of the enemy, a rustle was heard, and after a short time cautious, stealthy footsteps were heard. Soon human silhouettes began to appear in the darkness, moving toward the listening post; there were

about ten of them. It became clear to the scouts that this was an enemy reconnaissance, intent on penetrating our position. What shall the scouts do in this case? Join battle with the enemy reconnaissance, thus giving themselves away, or stay in the same position, not betraying their presence? The scouts chose the latter. Knowing that our battle outposts were behind them and that the enemy inevitably would run upon them, they acted quite correctly, letting the enemy reconnaissance go by and continuing to listen.

The task of a listening post is to locate in an area before nightfall, as a rule, at a point from which the planned listening site is visible.

In assigning a listening post mission, the commander may point out:

-- reference points visible at night;

-- where the enemy is and what he is doing;

-- the listening site, what to install and what sound indications to pay special attention to;

-- listening times and the schedule for reporting listening results to the commander sending the post out.

If a listening post is established beyond the outpost line of our forces, a schedule for moving out from the outpost line and for returning to their positions will be established also, and they will be given the challenge and password.

If necessary, the commander sending out the listening post organizes their cover.

Movement out to the listening site is accomplished after dark and the return after completion of the mission -- before the approach of daylight.

Listening is conducted in mountains by posts of 3 or 4 scouts, one of whom is in charge. Moving out to their post, they go in a triangular formation (with the angle forward), the man in charge being ahead, as a rule.

Responsibilities are distributed among them in this way: one listens for anything occurring ahead or to the right; the second -- ahead and to the left; the third -- to the left (or right) and to the rear. Such a listening arrangement in mountainous terrain has fully justified itself in battle and combat exercise experiences. This allows the minimum number of scouts to listen on all sides without their attention being distracted.

Here is an example from World War II of proper organization for listening in mountains. An element from one regiment was forced to halt its advance for some time toward a defensive line occupied by the enemy in the mountains, in order to regroup its forces and arms and to bring up support-

ing weapons, which were spread out along a mountain road. On the line mentioned, the enemy had barbed wire entanglements and had arranged obstructions, trenches and other defensive works. Judging by this, it appeared that the enemy intended to defend this place stubbornly. At this time, it became known from reconnaissance information that the resisting enemy was a small force and hardly could be expected to hold the line indicated. A more exact definition of the enemy's intention was required. This mission was entrusted to a group of courageous scouts from the ranks, Privates Sysoyev, Kuznetsov and Petrov.

With the coming of darkness, they moved out near the enemy defensive positions to listen. Until approximately midnight, an enemy machine gun section fired from time to time in the direction of the regimental battle formation. But later on the fire became weaker. Within the enemy positions, movement became noticeable, engine noise and the sound of breaking twigs was heard, and voices were raised. The man in charge of the listening group, comparing all available information, concluded that the enemy was preparing to withdraw. A scout was dispatched quickly with this information to the commander who organized the listening. On the basis of this information, one of the elements of the regiment received the assignment -- reconnoiter the enemy defenses and, in the event the listening information was verified, begin at once to pursue the enemy.

The unit, not meeting great resistance, went through the barbed wire entanglement and, convinced that the enemy had withdrawn, began to pursue him.

Thanks to skillful listening, the intentions of the enemy command were determined and he was prevented from breaking off contact with our pursuing forces.

The conducting of listening reconnaissance in mountains makes it possible to obtain valuable information about the enemy, especially under night conditions, as well as by day under conditions of poor visibility (low clouds, fog, rain and so forth).

However, it must always be kept in mind that listening in mountains is useful only if it is really well-organized, and when scouts who are well-trained and who know well the particulars of different sounds are detailed for listening.

We bring up one example which took place during World War II (1944) in one of the sectors of the front lines in mountainous terrain.

Army forces prepared to assume the offensive. The night before the attack, in one of the important sectors where our forces were to launch the main strike, a division in that sector was ordered to organize listening side-by-side with other methods of reconnaissance.

The specific execution of this mission was entrusted to two scouts of the regimental reconnaissance platoon, which was in immediate contact

with the enemy. The listening group was supposed to establish whether the enemy reinforced this sector with tanks by night. This was very important, since if the enemy brought up tanks into this region, the change in strength ratio would not favor our attacking force.

The scouts occupied the designated place and began to carry out their mission. At about 2 o'clock in the morning the regimental staff received news from the listening group that a large number of enemy tanks had arrived in the region mentioned between 2200 hrs and 0200 hrs.

However, when they began to check thoroughly the information received from the regimental "listeners," it turned out that no enemy tanks whatever had arrived in this area; the scout-listeners had mistaken the work of two or three prime-movers, pulling guns into position over two mountain roads which were difficult to negotiate after rain, for tank movements.

This happened because the scouts chosen for listening were not well-trained, poorly understood how to differentiate among sounds, drew hurried and unfounded conclusions and sent them to the staff.

Listening in mountainous terrain is very important as a reconnaissance method and must be conducted on a broad scale; however, in all cases, information obtained by listening must be verified by different reconnaissance means and methods and compared with information obtained from other sources.

Listening, in mountains as on level terrain, requires the wide use of special technical means. In particular, listening may be carried out by use of communications means. This makes it possible to gather information by listening in on enemy telephone conversations and by intercepting his radio messages.

Sharply broken mountainous terrain creates an abundance of dead spaces and hidden approaches. This, in its turn, assists in penetration of enemy positions by scout-listeners, who can tap enemy wire communication lines with an ordinary field telephone. The scout group appointed to listen in on telephone conversations must not fail to include a scout who knows the enemy language. Otherwise, the organization of such listening is useless.

For intercepting enemy radio broadcasts, a special radio station or receiver is provided, with the help of which radio operator-scouts who know the enemy language can listen to the radio transmissions and obtain the necessary information in this way.

Such a situation, which occurred during World War II, might be cited.

In one of the mountainous areas of Carpathia, our troops, exploiting an attack, reached a water line and seized a bridgehead. The enemy launched a fierce counterattack, with the aim of stopping further advance by our forces. Scouts of one division, listening to enemy conversations with a radio, received this message: "I am 1st Battalion commander, Captain Fish-

man, . . . I am out of ammunition, I have lost many, there are 46 men left in the battalion, I cannot hold out, I am starting to withdraw." Timely receipt of this radio intercept by the regimental commander permitted him, committing his reserve, to repel an enemy counterattack, to force the remnant of the enemy battalion to dig into the trenches of his next defense line and to expand and secure the bridgehead.

Many similar examples of successful radio intercepts can be taken from the war years.

Consequently, this method of listening is used during operations in mountainous and wooded mountain terrain.

#### Raids in mountainous terrain

Raids as a reconnaissance method consist of a hidden approach to the previously studied and planned objective chosen for the reconnaissance element, and of a sudden attack on it with the purpose of seizing prisoners, documents and different types of armament and military equipment.

Objectives of a raid may be an individual soldier (observer, machine gunner, messenger, patrols and others) or any small enemy group in the forward area or deep in his position, in trenches, in individual dugouts or in other defensive works.

Raids are the most difficult method of reconnaissance. They require great skill in organization and conduct, exceptionally good training, endurance and steadfastness on the part of the scouts.

In mountainous and wooded mountain terrain, a raid is the most widely used method of conducting reconnaissance.

Experience during World War II and postwar military exercises confirms that, under mountain conditions, a raid is most advantageously conducted at dawn, in fog, at twilight or under night conditions. Wooded mountain terrain provides the most advantageous conditions for conducting raids by daylight.

How, then, is it explained that, under mountain conditions, it is better to conduct raids in daytime, rather than at night?

Nights in mountains are especially dark; sometimes it is so dark that nothing can be seen 3-5 m away. It is darker still when one is in a valley or gorge, that is, in low places.

It is difficult to orient oneself, even by day, but at night it is even more difficult to find the intended attack objective, even one studied before to a sufficient extent; it is as though it were exceptionally well-concealed and adapted to the terrain. In return, the sharply broken and

closed terrain, as well as the presence of a large number of hidden approaches to enemy positions and unoccupied terrain areas, permits successful conduct of raids under daylight conditions.

However, this does not mean that night raids will not be conducted in mountains. It all depends on the specific conditions which develop, but it must be remembered that preparation and conduct of night raids is very complicated. Preparations for night raids must be very thorough. It is necessary to designate the route of the reconnaissance element (group) to the objective of the raid by artificial reference points suitable for night use. It is necessary to study very well the terrain of the area, approach routes to the objective, hidden and unobservable approaches, the location of obstacles and bypasses around them. There must be exceptionally good mastery of the signals and commands, so that the safe conduct of the raid, on the approach to the objective, as well as during withdrawal to their troop positions after fulfilling the mission.

Preparation of a reconnaissance element (group) for a raid in mountains requires a great deal more time than for one on level terrain. This is explained by the fact that organizing a raid in mountains, in addition to questions to be resolved on level terrain, as a rule, raises the necessity for study of approaches and the nature of mountain obstacles on the route to the objective by a small reconnaissance group dispatched ahead of time. Besides, movement by individuals must usually be quick and silent in overcoming mountain obstacles with the help of mountain equipment.

Experience during World War II and unit training exercises shows that selection of reconnaissance elements or groups for conducting raids in mountains is not expedient, for the most part. The direction of large numbers of scouts is very difficult and complicates movement, especially in areas which are passable only with difficulty; besides, large groups can easily be detected by the enemy, and this leads to unwarranted losses. Therefore, reconnaissance elements and groups for conducting raids in mountains are best composed of a small number of men, of 8-10 men.

Objectives for raids in mountainous terrain are usually chosen on the flanks or rear of enemy strong points, in places where the enemy least expects the appearance of our scouts and where density of his fire and obstacles is usually less.

After receiving a mission and understanding it, the reconnaissance element or group commander, together with the scouts, must thoroughly study the disposition of enemy weapons, engineer works and terrain in the area in which the attack will be conducted. Hidden approaches leading to the flanks and rear of the objective must be studied especially thoroughly. Continual and unrelenting observation of the selected raid objective must be executed.

It is recommended that study of the objective in mountain and forested mountain terrain be conducted from 2 or 3 points, since observation of the objective from 1 point does not insure a full and detailed knowledge of it under these conditions.

Experience in the conduct of reconnaissance in mountains during past wars underscores the fact that, if study of the objective is insufficiently thought out and then is made from only one place, the raid will usually be unsuccessful. Here is one of the examples.

A reconnaissance group, observing an enemy objective, established that, every day, in the evening, a group of four or five men went to an isolated house located in neutral territory. The reconnaissance group was given the mission of seizing prisoners from this group, in order to learn from them information of the enemy dispositions and of his intentions in a given direction.

The scouts organized observation for the purpose of studying the area of operations and the raid objective from one of the heights immediately in front of the forthcoming operation. Observation was continued for a period of two days. As a result of the observations, the reconnaissance group commander came to the conclusion that it was best to approach the house and to launch the attack on the enemy group from the southwest side. The basis of this decision was that the enemy soldiers always moved in a southeasterly direction and, besides, in the southwest part, in his opinion, was a more covered area, which might facilitate surprise in the reconnaissance action.

However, two days after the study and observation, on the night of the raid, when the scouts had covertly approached the house and were ready to rush it, they noticed ahead a deep bluff with a wire obstacle, which they could not get through silently. And the enemy soldiers, during this time, went past the place of the planned attack and returned to their own positions. Of course, the reconnaissance group returned to its own positions without accomplishing its assigned mission.

This all occurred because study and observation of the raid objective had been organized from only one place. The result was a one-sided study of the terrain in the operations area and objective, only from the southeast; the southwest sector, where the group had to conduct the operation, was hardly studied at all. In order to study it well, they should have selected new observation sites, which would have insured good observation of the whole area. The group commander did not do this and, as a result, the raid was unsuccessful.

A decision to conduct a raid must take into account the times for the start and end of the raid, the line of departure and time of departure; the approach route to the enemy and the order of march; measures to prevent, and plan of action in the event of, an unexpected meeting with the enemy before reaching the attack objective; conventional signs and signal for directing the reconnaissance element (group); the plan of attack on the raid objective; order and route of departure after accomplishing the mission; first aid and evacuation of the wounded; plan for taking prisoners.

After arriving at a decision as to the conduct of the raid, training must be conducted on terrain similar to that in the raid area in overcoming mountain obstacles and activities during the attack on the objective. When

conducting the training, it is necessary to rehearse every step of the raid from beginning to end, to precisely delineate individual details and to remedy any defects discovered. The training exercises also make it possible to check all calculations made. Full agreement must be reached as to the scouts' activities, with each one knowing and remembering every part of his task, role and place in the raid, at every stage of the raid.

Just as during the training exercises, so during the raid, special attention must be given to maintaining individual mountain equipment and knowledge of its use, questions of mutual aid in overcoming mountain obstacles, as well as questions of orientation during the raid.

When assigning the raid mission, the element (group) commander usually explains: reference points; intelligence of the enemy in the raid area; the element (group) mission and the plan for executing it; composition and tasks of the attack, security and obstacle removal groups; route and order of movement to the raid objective; plan of action during the attack and the return; plan of action for the scouts during a sudden meeting with the enemy before reaching the objective; location of supporting fire positions; signals to open and cease fire; direction signals and their locations.

The times for beginning and ending the raid must be chosen with great accuracy. In calculating the times, it must be borne in mind that the reconnaissance element (group) will approach the enemy over unfamiliar and difficult mountain terrain, will operate under night conditions and, besides, will need to make frequent stops in order to orient themselves and to restore communications within the group.

Every scout selected for a raid must learn his task, plan and direction of movement, signals and conventional signs.

The sudden appearance of even a small group of scouts on an almost inaccessible height, which the enemy considers to be unoccupied, significantly increases chances for success of the attack.

In approaching the objective of an attack in mountainous terrain, it is necessary to take into account the circumstance that scouts may easily be detected by the enemy as they move over mountain roads, trails and over passes at the tops of dominating heights, since in these places the enemy will set out listening posts, send out patrols and set up ambushes.

The approach to an attack objective in mountains is made best of all along ravines, streams and along the slopes of hills and ridges.

The line of departure for the reconnaissance detachment assigned to the raid should be as close as possible to the raid objective. Upon leaving it the scouts must move toward the raid objective under cover, taking all necessary measures for concealment and security.

The raid operation usually begins with the making of a gap through the artificial obstacle. After receiving the signal from the obstacle removal

group that the approach to the raid objective is ready, the security group moves out and, after it, the main assault force.

The distance between scouts must be such that commands may be transmitted from hand to hand or along a cord.

When crawling along, it is necessary also to observe caution, feeling the earth, vegetation, rocks and surrounding objects. So as not to give oneself away while crawling along hillsides on hands and knees and not to dislodge rocks, especially near the raid objective, it is necessary to support oneself on the elbows and knees, slightly raising the trunk.

In mountainous terrain, particularly at night, it is very difficult to orient oneself; therefore, at the point of departure it is necessary to determine the azimuth of the movement and to designate one who knows well how to move by azimuth and find reference points and the route of movement to the objective, as the lead scout.

In moving across a minefield, it is necessary to hold strictly to the designated direction, since an unnecessary step to the side may cause a mine to explode and to kill the whole affair.

Fire may be opened only on order of the group commander. Silence must be most strictly observed, because any sound at all may give away the presence of the group and prevent accomplishment of the mission.

If the enemy opens fire, even that does not mean that he has observed the scouts; in this event, it is necessary to keep cool, wait until the enemy ceases fire and continue with the mission.

Scouts must be able silently and safely to overcome all possible obstacles in approaching the enemy objective.

If the enemy succeeds in detecting the reconnaissance element (group) as it approaches the attack objective, it is impossible to remain in place; even if the enemy opens fire, it is necessary quickly rush ahead to the objective.

In securing the assigned objective, it is necessary to act boldly and resolutely; indecisiveness and sluggishness leads to failure to fulfil the assigned task.

An attack on an objective in mountainous terrain is best launched from above, since this permits a swifter attack on it. Besides, an attack on a selected enemy objective is more expedient from the rear and by a very difficult route, for the enemy will be more vigilant in the accessible directions, covering them with various obstacles and with fire, increasing observation and so forth; this significantly increases the difficulty of conducting an attack and may lead to failure to fulfil the mission.

In a sudden attack on the enemy, in the first place, it is necessary to disarm him; to accomplish this, it is necessary to stun him with a heavy blow on the head or by covering his head with a shelter-half (knapsack), then to gag him, tie his hands and quickly lead him back to his position.

If the enemy opens fire while the scout is returning to his own position, then, together with his prisoner, he must wait it out in a sheltered place until the enemy ceases fire. If there is no cover, then he calls for fire from the supporting units by previously agreed signals.

In no event may the body of a dead scout be left in the foe's territory, or wounded in the fire zone. All measures must be taken to return them to the positions of their troops.

Here is an example of a raid conducted in mountainous terrain, which took place during a tactical exercise (Fig. 31).

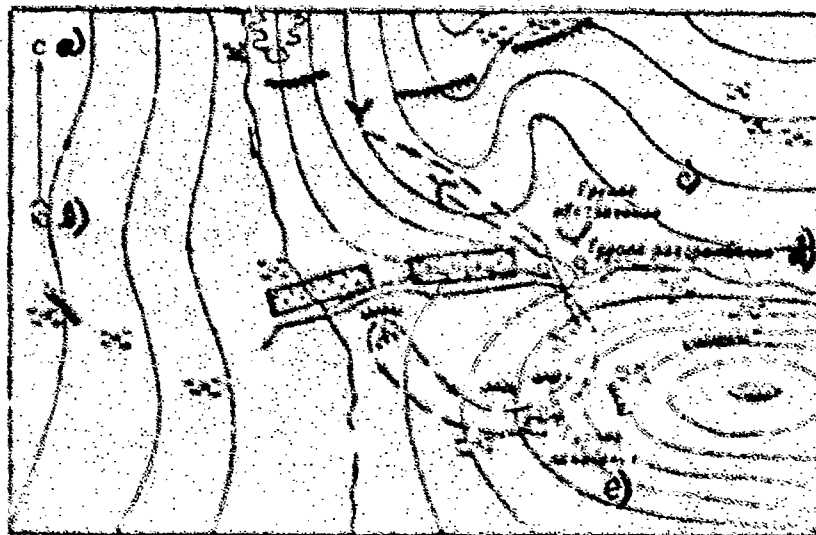


Fig. 31: Actions by a rifle squad under command of Senior Sergeant Fomin on a raid.

Key: a. North                      c. Security group                      e. Attack group  
b. South                      d. Obstacle removal group

An attack by a motorized infantry battalion was stopped by organized "enemy" fire from the southwest slope of Hill 1000. In order to determine precisely the "enemy's" alignment and intentions, it was necessary to take a prisoner in the vicinity of Hill 1000. This assignment was given to a rifle squad, with two combat engineers attached, under the command of Senior Sergeant Fomin.

The strength of this reconnaissance element was distributed as follows: four men were assigned to the attack group; four men -- to the security group; and two men (combat engineers) -- to the obstacle removal

group. Beforehand, the scouts thoroughly studied the terrain and the attack objective -- a machine gun crew, which was moved out every night by the "enemy" to an isolated dugout near a stream.

According to the plan adopted, the scouts were to move unnoticed by the northwest slope of Hill 1000 to the machine gun crew in the "enemy" rear. In case of detection of the attack group by the "enemy," the security group must cover the attack group and its withdrawal after fulfilling the mission.

The attack group successfully negotiated the route cleared by the combat engineers into the forward defense area of the "enemy," and proceeded to the vicinity of Hill 1000; they neared the attack objective unnoticed. They took the dugout in a sudden assault and noiselessly took the machine gun crew prisoners.

After this, the attack group, with two "prisoners," began its return to friendly lines. However, in traversing the "enemy" forward area, they were detected and fire was opened on them from an entrenchment on the northern slope of Hill 1000. The security group returned the "enemy" fire and insured the safe return of the attack group to friendly lines.

#### Ambushes in mountainous terrain

Ambush -- it is a secret, thoroughly camouflaged position, prepared well ahead of time by scouts on a route the enemy is most likely to use, with the aim of making a sudden attack on him and seizing prisoners, documents, different types of weapons and military equipment.

A well-organized and well-prepared ambush -- in its way, it is a trap for the foe; to fall into it is easy, but to escape from it is exceedingly difficult.

In comparison with other reconnaissance methods, ambush has a number of advantages. The enemy, not dreaming of danger, falls into the hands of the scouts, who are almost completely safe. A sudden attack from a short distance completely surprises and demoralizes the enemy, depriving him of the possibility of taking any countermeasures. An attack from ambush itself is over very quickly and is usually without loss to the scouts.

#### Preparation and organization of ambushes

In mountains, ambushes as a reconnaissance method have very wide use in all types of combat, and ambushes set up on attack and retreat routes of the enemy are frequently beyond the scope of reconnaissance. In mountains, such ambushes are frequently directed towards the annihilation of the retreating enemy manpower or, by sudden and stunning attacks on the enemy, to force him to abandon his equipment on mountain roads. The example given below will serve to confirm this.

In the Sudak area (1944), ten scouts, with Private Krupchannikov at the head, set up an ambush on a very narrow section of road: above the road was an overhanging cliff; below was a steep slope. When the enemy column reached the ambush site, the scouts suddenly opened heavy fire with automatic weapons and threw grenades at the enemy vehicle column. Ahead of the vehicles was a roadblock, which caused a traffic jam. Panic sprung up among the soldiers. At this time, our main force, following the enemy, hit the column from the rear. As the result of a short battle, 70 enemy soldiers and officers were killed, about 500 prisoners and many vehicles and much military equipment were taken.

Especially thorough forethought must be given to the organization of an ambush on a route over which enemy nuclear weapons delivery means and ammunition are likely to pass. These means will be moved up to the front lines by the enemy, employing every means of concealment and security; therefore, ambushes must be so arranged and so secured as to prevent the enemy scouts from encountering them.

For preparing ambushes in mountains for strictly reconnaissance missions, it is normal to assign an element with this composition: a squad or platoon in armored personnel carriers and tanks, or a foot reconnaissance group, numbering 8-10 men.

Depending on the situation and terrain conditions, an ambush may be reinforced with combat engineers and separate guns. In all events, as in reconnaissance conducted by other means, the ambush group must include a chemical scout.

Ambushes are usually set up:

- in friendly positions or in neutral territory -- in such directions, sectors or routes as enemy reconnaissance activity is expected;

- in enemy battle formations -- on routes of movement of individual soldiers (messengers, patrols, motorcyclists and others), as well as on communications lines;

- in the enemy rear -- on roads and trails and in other areas where movement of men, transportation and military equipment, particularly nuclear weapons, is possible.

Ambushes in mountainous terrain are similar in many respects to those organized on less broken terrain in their preparation and organization, and means and methods of operations, but have individual characteristics which must be recognized.

Conditions in mountainous terrain themselves favor conduct of ambush.

The enemy is unable to set up continuous defenses and to close all approaches, of which there are very many, in the mountains; therefore, dis-

covering places for setting up ambushes within enemy positions is much simplified.

Sharply broken mountainous terrain, with a great many folds and covered places, often with thick vegetation or abundant rocks, provides excellent conditions for hidden operations by small reconnaissance groups in enemy positions.

The very small number of roads and trails almost always forces the enemy to move by one of these routes or another; even small groups or individual soldiers cannot avoid it. Therefore, in mountains it is much easier to find a place which is suitable for setting up ambushes.

The great number of various terrain folds, slopes, gorges, hollows and so forth, make it possible to lead an enemy directly into an ambush, and this, in its turn, creates very favorable conditions for sudden and stunning attacks, without even opening fire.

Preparations for conducting an ambush involves selection of an ambush site, study of the routes of movement to it and return and selection and thorough study of attack objectives. However, in the course of military operations, circumstances may arise which require setting up an ambush without prior preparation. For setting up such ambushes, the most experienced and wisest scouts must be chosen.

In mountainous and forested mountain terrain, ambushes can most conveniently be set up on roads and trails which go through narrow valleys, gorges, ravines and wooded areas. However, movement by mountain roads and trails to the ambush site is not recommended, since the enemy himself is constructing ambushes in these places and organizing patrols. For covert movement to ambush sites, it is best of all to use the most difficult areas of mountainous terrain.

For taking prisoners by setting up ambushes, in mountains, during World War II, the widest variety of objectives was chosen. Ambushes were set up around entrenchments, road junctions, bunkers, dugouts, by intentionally destroying enemy communications lines, near bridges across mountain rivers, on routes usually travelled by sentries, patrols and messengers, on routes of movement of motor vehicles, motorcycles and tanks, especially on sharp turns and ascents.

Successful ambushes in mountainous terrain depend, not on numerical superiority over the enemy, but on sudden attacks, coordinated actions, and on the skill with which scouts operate in mountainous terrain conditions. For an ambush, men must be chosen who are courageous and bold, have keen hearing and excellent eyesight, and who move quickly and silently, using mountain equipment, and orient themselves very well in mountains by day and by night. Bravery, endurance, strong discipline and mutual helpfulness -- basic qualities of scouts in setting up ambushes.

Preparation of scouts chosen for ambush operations must take place in difficult sections of mountainous terrain, with particular attention to the silent movement of equipment, concealment and silent actions.

Ambushes can be set up in mountains by day, as well as by night. Ambushes at night have a stunning, demoralizing effect on the enemy, but under mountain conditions they require particular thoroughness in preparation, training of scouts and coordination of operations. Orientation in mountains at night is especially complicated, both when moving up to the ambush site, and in attacking the enemy and returning to friendly lines. Therefore, as experience in past wars and postwar maneuvers shows, mountain ambushes are most often carried out under daylight conditions. This makes it possible to act in a more confident and coordinated manner; and, with regard to covert operations, the mountainous terrain itself, with its abundance of all kinds of cover, facilitates them.

For scout operations in night ambushes, it is necessary to provide them with night vision equipment.

Setting up an ambush during mountain operations is done most advantageously in this manner: the attack section of the group must take up positions as close as possible to the road or trail, that is as close as possible to that place where there is the greatest likelihood of the enemy appearing. The remainder of the group or element must take up positions on the slope above, in two or three spots selected so that the area where the enemy is expected to appear is covered by fire from all sides, and so that that security of the attack group is insured from all sides as well.

Here is one of the examples of conduct of an ambush in mountains.

In one sector of the front, reconnaissance group commander, Sergeant Rudnev, received the assignment of moving out into the enemy area and taking prisoners. The reconnaissance group of six men spent a day thoroughly studying enemy defenses and the area selected for penetration of the enemy lines from an observation post to the east of Mount Odnoga. Penetration of the forward area of the enemy defenses was to begin after midnight, with arrival in the enemy rear calculated to be before sunrise. At 2300 hrs the reconnaissance group started out, and at 0100 hrs the scouts had safely penetrated the enemy's forward defense area (Fig. 32). At 0200 hrs the scouts had penetrated 1.5 km behind the enemy forward area and had arrived on the northwest slopes of Mount Odnoga.

Thoroughly studying the footprints on the trail, Rudnev concluded that the enemy used one of the trails: this was witnessed to by the presence of enemy soldier boot prints and a number of other signs -- cigarette butts and pieces of paper thrown beside the trail, usually on the ascent to the peak, where the enemy evidently went to rest. Rudnev positioned the scouts along the trail with the aim of making a successful attack on the enemy.

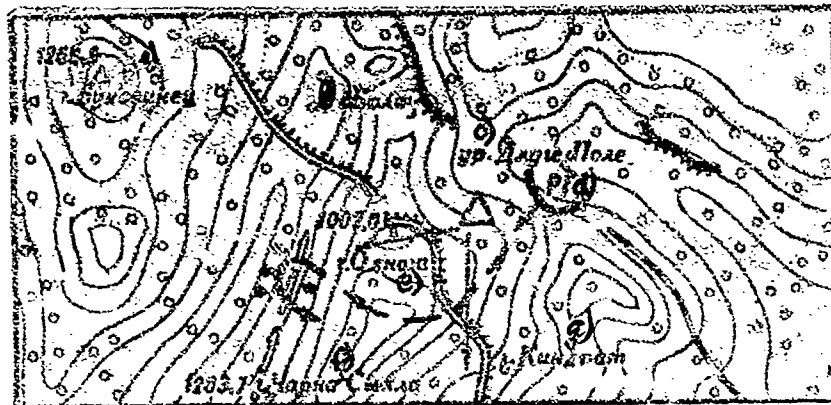


Fig. 32: Ambush activities of Sergeant Rudnev's reconnaissance group

Key: a. Mt. Bukovinets e. Mt. Odnoga  
 b. Mt. Bolt f. Mt. Charna Sykhla  
 c. Dluge Pole area g. Mt. Kundrat  
 d. Reconnaissance group

Indeed, in a few minutes a group of enemy soldiers, numbering ten men, appeared on the trail. When they had approached to within 15-20 m of them, on Rudnev's command, the scouts simultaneously opened heavy fire. The enemy lost their heads, several soldiers were killed, and the rest dropped to the ground. Not giving them time to collect themselves, Rudnev rushed forward, commanding as he moved: "Halt, hands up!" Three enemy, after throwing away their weapons, raised their hands.

Having taken the prisoners, Rudnev quickly headed back toward his own unit. The whole group returned safely to their position.

While conducting combat operations in mountains, ambush as a reconnaissance method finds wide use in all types of unit combat activities.

During reconnaissance detachment operations in mobile warfare or scout activities in the enemy rear, the situation will develop most often so that, under generally favorable conditions for setting up an ambush, time to organize it will be severely limited. Under these conditions, the reconnaissance element (group) commander must quickly evaluate the situation, literally on the move make a decision and assign the combat mission, having pointed out where and how many enemy there are, the purpose of the ambush, where and in what order to take up positions, the order of attack on the enemy and signals and their locations.

### Methods of operation from ambushes

The attack on a single enemy soldier approaching the ambush site must be sudden, without firing. It is expedient to accomplish the attack on an individual tank, motor vehicle or motorcycle after the vehicle has been put out of action by fire or by being blown up (with a mine or grenade).

If various kinds of traps are prepared on the enemy route of movement, the attack on an individual tank, motor vehicle or motorcycle can be accomplished silently.

Wire or strong rope may be stretched across the road ahead of time to attack a motorcyclist; running into the wire, the motorcyclist will be thrown from the motorcycle.

For a tank or motor vehicle, a well-concealed hole or ditch may be prepared, into which a tank or motor vehicle will fall, after which prisoners may be taken silently and easily from the ambush.

From among the examples of ambushes organized in mountainous terrain, the action of a reconnaissance group in the area of Mount Styrka (Fig. 33) might be used.

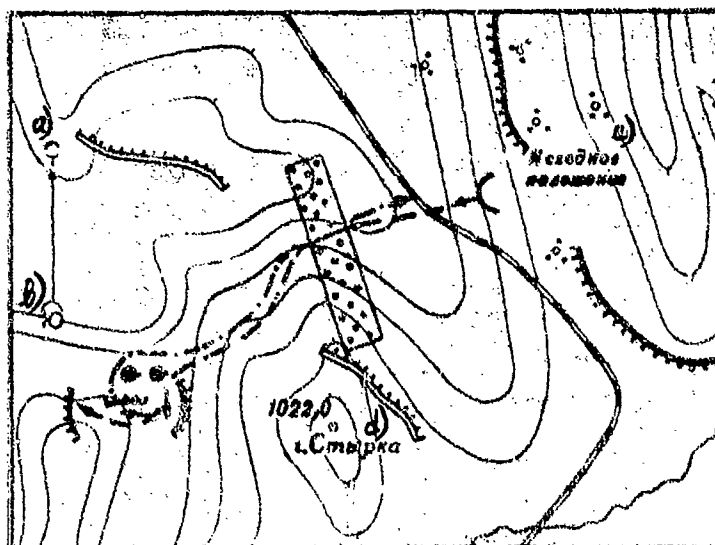


Fig. 33: Night ambush operation of Sergeant Konovalov's group

Key: a. North                      d. Mt. Styrka  
      b. South  
      c. Point of departure

The reconnaissance group was composed of ten men. Training was conducted for the entire group, in which special attention was given to the techniques of moving through mountains, secrecy in approaching ambush sites, arrangement of the ambush and methods of attacking the enemy. After preparation was finished, the group set about performing its assigned mission.

The scouts, penetrating a mine field under cover of darkness, reached the ambush site. Group commander, Sergeant Konovalov, familiarized himself and the group with the terrain in the ambush area, and gave details of the battle tasks and plan of action.

Approximately an hour after arriving in the ambush area, enemy movement in platoon strength was noted in the direction of the reconnaissance group. Sergeant Konovalov decided not to attack the numerically superior enemy force approaching, since to do this silently would be impossible; but he decided to let the enemy platoon pass and to wait for single soldiers. A half-hour later, two enemy soldiers appeared on the trail. The group commander decided to attack them. When the enemy soldiers came even with the ambush site, the scouts designated for the attack swiftly pounced on them. One of the soldiers was killed with cold steel, and the other was taken prisoner. The enemy did not detect the action of our reconnaissance group. Completing the assigned ambush, the group returned with the prisoners and without loss to their own unit positions.

Thus, by careful preparation, proper selection of an ambush site, as well as good self-restraint and silent actions, the scouts insured the accomplishment of the assigned mission.

Experience in combat operations in mountains confirms that ambushes may accomplish tasks, not only by taking prisoners, military equipment and documents, but may cause great losses among superior enemy forces, engage in battle with reserves moving up, temporarily delay movements on roads and trails which cross gorges, ravines, cornices and so forth. To accomplish such a mission, ambushes must be more heavily manned and must take advantage of tanks, armored personnel carriers and separate guns.

In concluding this section, the reminder must be given of the basic obligation which every scout must know and implement during training and ambush operations.

Every scout selected for an ambush must clearly understand his task and the unit mission, the plan of movement to the ambush site, communications signals and the plan for return to his unit positions.

The route by which he will move must be thoroughly studied, and movement to the attack site must be accomplished with all measures of security, silence and secrecy.

In an ambush, thorough concealment in the surrounding terrain, without giving the slightest sign of life, and observing absolute silence, is necessary.

Observation sites with good all-around fields of view must be chosen; the enemy's appearance is to be signalled quickly to the commander, but in such a manner that the enemy does not notice. Otherwise, the success of the mission will be frustrated.

It is necessary to wait patiently for the enemy, until the commander signals the taking of some action or other.

In taking a single soldier prisoner, action is sudden, only cold steel is used, and firearms are used only in exceptional circumstances.

When prisoners or documents have been captured, a quick departure from the ambush area must be made. Do not stay at the attack site for anything, lest the enemy take advantage of it.

The basis of success in ambushes is the endurance and courage of the scouts, suddenness of action and the ability to cleverly overcome mountain obstacles.

#### Reconnaissance in the enemy rear

Reconnaissance in the enemy rear -- the most complex type of scout operations in mountainous terrain.

Scouts operate in the enemy rear in isolation from our forces, without their help and fire support, in completely hostile surroundings and on unfamiliar terrain. Scouts will have to overcome many difficulties, are continually exposed to danger, and experience great physical and moral stress. Therefore, side-by-side with heightened vigilance, it is necessary to observe maximum secrecy, caution and self-control, to be prepared continually (if conditions require) to fight independently, counting exclusively on his own strength.

Characteristic of the nature of scout operations in the enemy rear are their independence in selecting attack objectives and methods of operation, which require skill in quickly evaluating a situation and reaching a valid decision.

For accomplishing reconnaissance missions in the enemy rear, it is necessary to choose scouts whose devotion to their native land knows no bounds and who are ready for any trial, who possess strong character, strength of will, physical hardiness, resourcefulness, inventiveness, efficiency and ability to overcome various mountain obstacles. If possible, scouts must be chosen from among inhabitants of mountain regions and alpinists who have experience in moving through mountains.

Under modern conditions, one of the most important missions of scouts operating in the enemy rear is the unmasking of the areas and sites of nuclear attack means positions and preparations for their use as well.

In addition, they can carry out other important reconnaissance missions, to disclose and define more exactly the enemy forces in a certain area, especially tank forces; to follow their displacements and the nature of their operations, to disclose the transport of enemy units by railroad and highway to or along the front lines, to establish the presence and state of readiness of defensive lines, the nature of their engineer-type works, to spot command and observation posts, headquarters, communications centers, depots and other important objectives in the enemy rear, to define more exactly the nature of the terrain in the enemy positions, condition of roads, trails, mountain rivers, bridges and crossings for various kinds of units. Besides disclosing enemy nuclear attack means, scouts operating in the rear may adjust the fire of our weapons and direct aircraft for the destruction of nuclear attack means and other most important objectives deep in the enemy positions.

The poor accessibility of separate mountain sections and the small number of roads and trails means that the enemy will not have a continuous front in mountains. Military operations will be carried on over a broad front, with vacant intervals and open flanks, which permits scouts to penetrate deep into enemy positions and conduct reconnaissance on his most important objectives.

Mountainous terrain favors scouts in conducting not just purely reconnaissance missions. Experience in military operations during World War II and during military exercises confirms that, during pursuit of the enemy, a small group of scouts can successfully attack small enemy units moving over narrow mountain roads, interrupt lateral roads at very important places, break up enemy unit supply and transport and destroy his communications lines and means.

A well-prepared and well-trained group of scouts, even of small size, operating in the enemy rear in mountainous terrain, can execute reconnaissance missions which would be beyond the power of the strongest small reconnaissance unit under level terrain conditions. Sharply broken mountain terrain and the large amount of different kinds of cover provide excellent conditions for secret reconnaissance operations in the enemy rear. Even in the event a group operating in the rear is discovered by the enemy, mountain conditions permit it to break contact with the enemy without loss, relocate in a different region and continue execution of its assigned mission.

The composition of a group of scouts operating in the enemy rear depends on the assigned mission and on terrain conditions. However, it can be stated definitely that, in mountainous terrain, such groups will be small, -- three to five, with a maximum of seven, men, since a large group has considerable difficulty in negotiating almost inaccessible sections of mountains and more difficulty in reconnoitering objectives.

As a rule, it is necessary to include in the composition of such a group a radio operator and a scout who knows the enemy language. This is important because the return of a prisoner captured in the enemy rear is not always possible. Therefore, interrogation will most often be conducted on the spot, and information obtained, especially of nuclear attack means, is quickly sent by radio to the commander sending out the group. To have in the group of scouts one who knows the enemy language is also important because scouts operating in mountains often interrogate local inhabitants, especially about questions of trafficability of routes, orientation, presence and nearness of the enemy and so forth.

It may also happen that scouts will suddenly run into hostile patrols or listening posts at night or during attack on an objective. In such circumstances, it will be important to distract the enemy's attention, even if momentarily, with phrases spoken in his language. To do this without a scout who knows the enemy language is almost impossible.

In case of necessity, the composition of the group for reconnaissance in the enemy rear includes an artillery-rocket gunner, chemical soldier and combat engineer.

Preparation of a group for operations in the enemy rear must be conducted on terrain similar to that of the area of the intended operation. Scouts must have a practical mastery of the following questions: equipment for observing the enemy deep in his positions; the group plan of operations in ambush, raids or necessary combat in various situations; methods of orientation and movement in mountainous terrain by map, azimuth, terrain features and methods of camouflage as well; equipment for tapping enemy telephone lines and listening to conversations; use of special means of mountain movement.

Scouts selected for operations in the enemy rear must know in detail all signs by which they may detect the presence and location of nuclear weapons delivery means and ammunition and know the procedures for moving them, going into firing positions, their deployment and protection methods.

Without study of enemy nuclear attack means and without knowing the signs mentioned, it is almost impossible to accomplish the task of reconnoitering them in mountains.

Scouts must study and know various methods of directing their aircraft to the reconnoitered target and simple methods of artillery target designation and fire adjustment.

Together with these, it is necessary to master the procedure for withdrawal of the group to a safe place in the event that, after signal of the scouts, our units are to launch a strike against a discovered objective.

## Procedure for dispatch and movement of groups in mountains

Scouts may be dispatched to the enemy rear in mountainous terrain on foot (by crossing the front lines), by parachute drop or by helicopter landing, depending on the situation. Whatever the means of transport, corresponding training of the scouts will be conducted.

Infiltration into enemy positions in mountains is considerably easier than under level terrain conditions. Even if the enemy is vigilant and active, he is unable to keep the entire zone under observation or covered by fire. Scouts ought to take advantage of this. Depending on the configuration of the mountainous terrain, in the more easily accessible sectors, the enemy defenses will naturally be stronger, and in other, less accessible -- weaker. Many sections, because of their inaccessibility or absence of trails leading to them, will turn out to be completely unoccupied by the enemy. Such sections are first class and must be used in penetrating the front lines.

For moving deep into enemy positions, scouts must use almost inaccessible sections of mountainous terrain, stay off the roads (if not stated in the reconnaissance mission assigned to them), move over wooded or rocky sections, since, going by road or trail, they will more quickly expose themselves to a sudden enemy attack. In addition, because of their scarcity, roads and trails will always be occupied by the enemy.

Off-road movement by the group insures the scouts' hidden approach to the objective, and this is one of the indispensable conditions for scout operations in the enemy rear.

Scouts must be silent in crossing the front lines, observing strict discipline and camouflage measures. In penetrating the front lines by night, it must be remembered that the enemy continuously observes, using night vision apparatus; therefore, successful penetration of the front lines is possible only by skilful use of the terrain. Movement is necessary by such a route that the danger of the group being illuminated by the infrared radiation of the night vision equipment is eliminated. Such spots may be gorges, ravines, dense shrubbery and vegetation. In addition, rain, fog and snow also decrease the possibility of the enemy's use of night vision means.

During the time of movement, short stops must be made to listen, especially at places where various mountain obstacles are overcome. When the area is illuminated by the enemy, the group, not waiting for commands, must halt and drop to the ground. If the group is detected by the enemy while penetrating the front lines, it is necessary, depending on the situation, either to call in artillery fire or, using the sharply broken terrain, to move to the side quickly, change direction and covertly continue movement toward the enemy rear.

Dropping the group in the enemy rear by airplane or helicopter is done most often when the mission assigned to them is at great depth or when

the group's route of movement has many different, serious obstacles (rocky and inaccessible areas, hard-to-cross mountain rivers, deep canyons and so forth).

Upon arrival of the group in the specified region, all scouts must, first of all, orient themselves, analyze the situation around them and determine more precisely the enemy disposition. On the basis of a thorough study of the enemy, the group commander defines more exactly the reconnaissance objective and determines the group's method of accomplishing its assigned mission. A hidden spot is then selected -- a base, which is the jump-off point for the scouts' operation and a resting place, which also serves for replenishment of ammunition and rations. The base must have good camouflage, hidden approaches to it and there must not be any strongly pronounced uncamouflaged features near it. The base location must be chosen in the wildest section of the area of operations, best of all in a cavern in a deep canyon or among rocks piled up by landslides. In the event that the main base is discovered by the enemy, an emergency base will be selected.

#### Scout operations in the enemy rear

Methods of scout operations in the enemy rear differ, and are determined every time by the commander on the spot, depending on the specific situation, the enemy, the terrain and the composition of the group.

A group operating in the enemy rear may conduct reconnaissance by observation, ambushes, raids, listening to telephone conversations, and by ground photography. These scout operations, in principle, are different in no way from operations under ordinary conditions, but they require great surprise and caution.

In all cases and by whatever method, reconnaissance operations must be silent, and fire must be held. Fire fights pressed by the enemy should be avoided by withdrawal to one side by a previously stipulated route and breaking off contact with the enemy, using the sharply broken terrain. If all do not succeed in avoiding battle with the enemy, the group must give full support by fire of their weapons, in order to wipe out the enemy or to inflict significant losses on him, and then swiftly break contact and hide in the mountains.

In mountainous terrain, a small, but well-trained, group of scouts may obtain very important information about the enemy and the terrain.

Here is one of the examples which illustrates this.

In the last days of September, 1944, our forces occupied defenses in the Carpathian foothills and prepared for an offensive in the mountains. Therefore, they required information about the forested mountain terrain ahead and about the enemy dispositions.

Four brave Soviet scouts (Lieutenant Chernov, Sergeant Martynov, Privates Khrepko and Slutskiy) set out on a difficult journey across the Carpathians. They wore winter camouflage coats, were armed with submachine guns, hand grenades and trench knives, and had a ten-day supply of rations with them.

While our forces fought in the foothills of the mountains, drawing the enemy's attention to them, the scouts moved up the slopes by forested mountain trails for two and a half days, and then they infiltrated through the forward area 30-40 km in the enemy rear, off roads, across remote and almost inaccessible sections. They traveled by azimuth, traveled day and night, in fog and bad weather, struggled through bushes, clambered over steep slopes, descended into gorges and forded mountain brooks.

Concealing themselves in dense, overgrown timberland along a road, the scouts vigilantly observed movement of motor vehicles and trains, work at railroad stations, spread out below in the valley. They chanced to meet an enemy patrol. At the enemy's peremptory shout, the scouts threw grenades, fired submachine guns and then quickly hid themselves in the forest. The scouts were stalked again several times later on by enemy patrols. When the scouts ran out of food, they started going by night to the local peasants, who willingly fed them and supplied them with food. They slept in the woods, not more than three hours a day. They slept by turns: one was on watch and the other rested. Upon fulfilling their mission, the brave scouts returned to their unit and gave their headquarters valuable information about the terrain, defensive works in depth and enemy reserves.

We bring up still another example of accomplishment of a reconnaissance mission in the enemy rear, but this time by a different method, the ambush method.

It was almost daybreak. An enemy cargo carrier appeared on the road which wound over the forested mountain slope. It quickly approached a sharp curve. When it was still a few meters from the curve, a tall tree previously felled by the scouts fell to the road with a crash, blocking the vehicle's way. The vehicle stopped. Two soldiers, together with the driver, jumped out of the vehicle and commenced a disorganized fire. A few answering rounds sounded from the woods. The soldiers who jumped out of the vehicle dropped, and the driver started to run for the woods, but was killed. The Soviet scouts ran out of the woods by the curve of the mountain road, set up here as an ambush, and ran up to the vehicle. An enemy soldier unexpectedly appeared from the cab with his hands up. He was speechless with fright.

At this time a light vehicle appeared on the road. The reconnaissance group commander, Captain Dubenko, ordered the camouflage coats to be drawn tighter, so that the forms would not be visible, and no firing without his order. The scouts proceeded to busy themselves around the vehicle, making it appear that they were repairing the road. Arriving a few meters from the obstruction, the light vehicle stopped. An officer leaned out of

the cab and asked: "What's going on here?" In place of an answer, Captain Dubenko aimed a pistol at him and said sharply: "Hands up!" The officer fumbled with his holster, but our scouts quickly disarmed him. The driver and a soldier found in the vehicle were taken prisoners. The vehicle was searched and our scouts had already set fire to it, when suddenly the lookout warned of the approach of a five-ton truck.

But this time the enemy, carrying mail and staff documents, together with freight, put up desperate resistance. Armed with automatic rifles and submachine guns, the enemy took cover under bags in the truck body and opened fire. Our scouts did not lose their heads. With their first shots, they killed the driver and put the vehicle out of commission. Knowing that the shots might bring help to the enemy any minute, Captain Dubenko succeeded in ending the fight. Together with two scouts, he stole up to the truck and killed the guard with grenades. A soldier and the officer escorting the staff documents and mail remained alive and were taken prisoner.

Reconnaissance group Captain Dubenko returned with a rich haul of war materiel, bringing with him four soldiers and one officer as prisoners. Three enemy motor vehicles blazed on the road where the ambush had been.

This example is a graphic demonstration that reconnaissance can be conducted successfully in the enemy rear, if it is well-organized and if an experienced, decisive and brave officer heads the group.

Withdrawal of the scouts must be accomplished quickly and in an organized manner; the main task in this is to break away from the enemy unnoticed. If the enemy should pursue the group, the withdrawal must be accomplished by leap-frogging and changing direction of movement, and, when necessary, using rocky terrain and various mountain obstacles and setting up ambushes for the purpose of inflicting losses on the enemy. Wounded and dead, as well as documents and equipment, must under no circumstances be left in the enemy rear.

A reconnaissance group may run into enemy ambush or outpost. Surprise in mountains, especially under nighttime conditions, has a stunning effect, and a scout with insufficient self-control may frustrate completion of the assignment. Therefore, foremost in an unexpected meeting with the enemy -- to keep cool and to act skilfully and resolutely. The quicker and more actively the group operates, the earlier will success come.

In addition to the above-mentioned methods of obtaining intelligence information in mountains, scouts may obtain information about the terrain and the enemy by questioning local inhabitants. However, it must be remembered that there may be some with hostile attitudes, as well as provocateurs, among them, who may misinform the group and set up traps for it. Here is a characteristic event, which took place in the Crimean mountains in 1942.

Early one morning, after an artillery bombardment by our batteries on an enemy crowded in entrenchments, our units were approached by a man,

who demanded that he be taken at once to the army headquarters, since he was a partisan and wished to communicate very important information about the enemy. He had a terrible appearance; wearing only his underclothes, ragged, dirty and blood-covered, he gave the impression of being a victim of the Fascists. Sent to the army headquarters, the stranger reported that he had been sent by the commander of a partisan detachment with a letter, in which was set forth a request to be informed of a plan for joint action against the Fascists. He also said that, when approaching the forward area, he had been seized by enemy scouts and put into a shed, together with other Soviet citizens. The letter had been taken away from him and, during his interrogation, he had been beaten and threatened with shooting. During our artillery attack on that area, the enemy guard had scattered and he had succeeded in escaping. He asked to be given a letter with the plan for joint action for transmission to the partisan detachment commander. All appeared to be in order. Nevertheless, a thorough investigation was made, which showed that the fake partisan was a spy sent by the enemy scouts. Therefore, in questioning local inhabitants, one must be very vigilant and very cautious.

In mountainous terrain, communication with scouts operating in the enemy rear is very complex. Use of the sole means of communication -- radio -- entails great difficulties, since high mountains and mountain ridges impede the spread of electromagnetic waves, absorbing and reflecting them.

Short- and partial very short-waves display the characteristic of going around obstacles they encounter as they spread. However, in view of the varied relief conditions, the spread of radio waves in various places is unequal. Therefore, radio station receivers and transmitters must be set on hilltops or, if this is not possible, on one side of a mountain massif.

If there is a mountain massif located between radio stations, there may be dead zones at the foot of the mountain, where electromagnetic waves cannot be received. In this case, radio stations must be situated 2-3 km from the foot of the mountain, in order to get out of the dead zones.

If two corresponding radio stations are located on opposite slopes of a mountain, they must be moved as close as possible to the peaks.

The presence of rivers and streams in mountains facilitates the establishment of radio communications between stations, even when separated by large mountain barriers.

Radio operator-scouts must learn all of these characteristics of mountain relief which influence radio communications in mountains.

Military operations of reconnaissance patrols, reconnaissance groups and reconnaissance detachments in mountainous terrain

#### Combat reconnaissance patrols

Combat reconnaissance patrols are sent out by small-unit commanders (company, battalion) to conduct reconnaissance in the course of combat, especially during small-unit operations in mountainous terrain, when personal observation of enemy operations and the terrain by the unit commander is difficult.

Combat reconnaissance patrols are sent forward and to the flanks beyond the immediate area of visibility.

A patrol operates in tanks or armored personnel carriers, and its composition includes a chemical scout with apparatus for radiological and chemical reconnaissance. Combat reconnaissance patrol operations are supported by fire from the small units from which they are sent out.

A patrol may be sent out on one of the following missions:

- to determine enemy preparations for counterattack and, at the same time, rule out his surprise actions by attacking elements;
- to define more precisely advantageous approaches to enemy strong-points or routes of withdrawal from them;
- to determine the nature of obstructions (especially in defiles, on passes, in hollows and other places), the presence of radioactive or chemically contaminated sections and the possibility of bypassing them;
- to disclose unoccupied or weakly defended sections in enemy positions;
- to find more convenient and hidden routes for small-unit movements in bypassing and outflanking the enemy.

Combat reconnaissance patrols operating in tanks or armored personnel carriers conduct observation of the enemy on the move, as a rule. When necessary, short stops are made on the reverse slopes of crests or peaks, ahead of sharp turns on mountain roads, as well as before descending into valleys (hollows); cover and camouflage measures are taken at these times.

When observation cannot be conducted from a tank (armored personnel carrier), the combat reconnaissance patrol commander organizes dismounted reconnaissance. The tank (armored personnel carrier) is located under cover, and the scouts left behind conduct all-around observation of the terrain and, on the commander's signal of readiness, support his activities by fire.

Movement to a new observation site is conducted in accordance with the situation and the company's rate of movement. In the event that a location contaminated with radioactive or chemical substances is discovered, the combat reconnaissance patrol commander informs the small-unit commander of this and, at the same time, takes steps to discover a bypass.

If a combat reconnaissance patrol discovers enemy movement to counterattack, it quickly notifies the unit commander, while continuing to establish more definitely by observation the advancing enemy's strength and composition. Thus, for example, on one tactical exercise (Fig. 34) a rifle squad under the command of Senior Sergeant Ponomarev, during an attack, received from the commander the mission: acting as a combat reconnaissance patrol on the company left flank, go out to Hill 198.8 and find out if there were any "enemy" and how many of them. Moving under cover to the northeast slopes of Hill 198.8, the squad commander discovered three "enemy" armored personnel carriers with infantry, who apparently were preparing to counterattack on the flank of the attacking company.

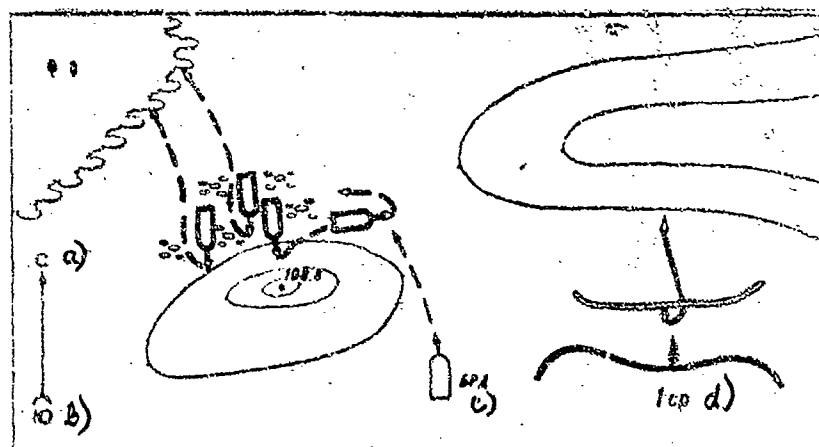


Fig. 34: Operation of a combat reconnaissance patrol under command of Senior Sergeant Ponomarev during an attack

Key: a. North                      c. Combat reconnaissance patrol  
b. South                         d. 1st Rifle Company

Senior Sergeant Ponomarev quickly informed the 1st Rifle Company commander of this. Shortly afterwards mortar fire was opened on the "enemy," as a result of which his battle formation was broken up: one "enemy" armored personnel carrier reached the northeast slopes of Hill 198.8 and was fired on by scouts of Senior Sergeant Ponomarev's armored personnel carrier; two other armored personnel carriers, not understanding the situation, abruptly turned and hid in the woods.

The "enemy" counterattack was broken up, and the company successfully exploited its attack. The combat reconnaissance patrol continued to reconnoiter, covering its company's left flank.

A tank platoon from a battalion may be chosen for a combat reconnaissance patrol. A combat reconnaissance patrol of such a composition might move in mountainous terrain in the following manner: during the time the platoon commander's tank is moving toward the designated observation shelter, the remaining tanks, taking up advantageous positions, remain in place, prepared to support the movement of the commander's tank by fire. Since only the commander's tank moves to the designated cover and takes up a convenient position for observation and conduct of fire, on order of the platoon commander, the remaining tanks move by bounds to the designated shelter, covered by the commander's tank.

A combat reconnaissance patrol must overcome the enemy battle formation with maximum speed, knocking him off his feet and clearing a route for his small unit. If it is not possible to penetrate through the enemy battle formation, the combat reconnaissance patrol must find a way around to the rear of the resisting enemy, with the aim of conducting further reconnaissance in its unit's interest.

In case the combat reconnaissance patrol commander discovers an enemy retreat, he notifies his commander, destroys the element covering the enemy retreat, and continues to conduct reconnaissance, to determine more exactly the enemy strength and his direction of retreat.

Combat reconnaissance patrols in mountains are the antennae of the small unit, without which, in the sharply broken terrain conditions, the military operations of the small unit will be very much hindered and will be conducted blindly.

#### Reconnaissance group.

A reconnaissance group may be sent out to conduct reconnaissance on the march and during a meeting engagement, during an attack, during pursuit of the enemy, in defense, during withdrawal and during movement into position.

A reconnaissance group may execute the following missions.

On the march -- to spot the enemy, to determine his strength, the presence of artillery and nuclear weapons delivery means, to reconnoiter the passability and condition of its unit's route of movement.

In a meeting engagement -- to establish the enemy line of deployment, his strength, composition and presence of nuclear weapons delivery means, to reconnoiter the terrain in our units' direction of operations.

On the attack -- to establish enemy strength and the nature of his operations, the presence of nuclear weapons delivery means; to reveal the nature of engineer defense positions, weak points in the defenses and gaps in the battle formation; to spot the sites of various enemy obstacles, to

find routes around them or places for taking them; to reconnoiter the area of a nuclear explosion; to conduct terrain reconnaissance.

During pursuit of the enemy -- to spot his retreating column and to determine its direction of retreat; to determine the presence of enemy nuclear weapons delivery means; to reveal the strength and composition of screening elements and lines on which they occupy defenses; to locate obstacles and obstructions, bypasses around them and places for taking them.

During defensive combat -- to determine the strength and nature of enemy actions to drive a wedge in the defenses, the presence of open enemy flanks, the dispositions of nuclear weapons delivery means, weak spots in the battle formation, to reveal the composition and nature of airborne landing operations, in case the enemy uses them.

During withdrawal of our forces -- to establish the time enemy pursuit begins, his strength and composition.

During movement into position -- to spot the enemy, to determine his direction of movement, strength, composition and the presence of nuclear weapons delivery means.

A reconnaissance group will receive a reconnaissance direction or objective. In all cases, it must attempt to seize prisoners, to reveal the presence of nuclear weapons delivery means and to inform its commander in good time.

For conducting reconnaissance ahead of the front, on the flanks and in the depths of the enemy battle formation, a reconnaissance group will go out as a reinforced platoon; however, it may be sent out in mountains, conforming to terrain conditions, as a reinforced squad.

Reconnaissance groups must include combat engineers, as well as chemical scouts for conduct of radiation and chemical reconnaissance.

If the mountains are not high and have good roads, a reconnaissance group is sent out in tanks or armored personnel carriers. The composition of the group may be 3-6 tanks or armored amphibious reconnaissance patrol vehicles and 1-2 motorcycles. Such a group composition has been corroborated by experience on military exercises. 2-3 patrol vehicles may be detached from its complement toward the basic direction of operations. It is recommended that patrol vehicles be sent out in mixed pairs (armored amphibious reconnaissance patrol vehicle -- motorcycle, armored amphibious reconnaissance patrol vehicle -- tank, motorcycle -- tank). However, in almost inaccessible terrain, it is better to use a single type of vehicle.

In terrain with high, rocky mountains, gorges, ravines, narrow valleys and forested mountains, which have an insufficient number of passable roads, the conduct of reconnaissance in tanks, armored personnel carriers and motor vehicles is extremely limited, and sometimes is ruled out. In

these cases, in contrast to level terrain, reconnaissance is conducted on foot.

Fields of view and fields of fire are restricted in forested mountain terrain, and speed of movement is significantly reduced also; therefore, as experience on military exercises has shown, the distance between a reconnaissance group and its unit will not be greater than 6-8 km during operations in tanks and armored personnel carriers, and 1.5-2 km during operations on foot.

A reconnaissance group conducts reconnaissance in mountains in an assigned direction by successive surveys of commanding heights and observation from them, ambushes and, when necessary, by fighting.

Taking into consideration the possibility that the enemy will set up ambushes, even in places where it is hard to imagine meeting him, it is always necessary to take security measures, organizing outposts and thorough surveys of various kinds of features encountered en route.

When operating on reconnaissance in mountains, it is always necessary to remember that even two-three enemy soldiers, concealed in some almost inaccessible rocky section, may inflict losses on our scouts and frustrate fulfillment of their assigned task.

During operations in armored personnel carriers or tanks, surveys of the terrain and terrain features are conducted directly from the tank (armored personnel carrier). During operations on foot, patrols are sent out to survey the terrain and terrain features ahead on the route of movement to the distance of direct visibility.

Flank patrols are not sent out in mountains, since almost inaccessible terrain almost rules out their movement parallel to the line of the reconnaissance group, and they usually drop behind or move far to the side and get lost. However, in case it is necessary, in the course of a reconnaissance, to examine some terrain feature or other to the side of the route of movement, scouts in the reconnaissance group must always be ready for operation to the side of the main route of movement (during reconnaissance operations in vehicles, one or two vehicles are sent out). They move together with the reconnaissance group main force; when the necessity arises for inspecting a terrain feature to one side of the group route of movement (for example, to examine a road, trail or gorge leading off to one side, a grove, a pass and so forth), they are sent out on the commander's order to examine this feature, and they return to the group when they complete the task.

Observation on the move in mountains is very difficult, and most often is impossible, because of the sharply broken terrain. Therefore, when a reconnaissance group enters a region where meeting the enemy is likely, the commander must halt the main force under cover and, having selected

a convenient point to one side of his route of movement, sends a patrol vehicle (pair of scouts) there to observe.

Every time patrols move away from the reconnaissance group main force, it will be to determine specific terrain and situation conditions; however, in mountainous terrain this distance will not be greater than 300-400 m when operating in tanks (armored personnel carriers) and 150-200 m while on foot. If a reconnaissance group is operating on foot, it must avoid roads and trails; it is better and safer to move by the slopes of peaks, taking cover on passes, using rocky terrain and lines which give the possibility of operating secretly.

If there is a ridge along the general direction of the reconnaissance, it is more advantageous to move along its slopes, unnoticed by the enemy. But when moving along the slope of a ridge, observation must be conducted from the slope opposite him, and from transverse ridges, hollows and gorges encountered en route, since the enemy often will set up ambushes in these places.

Forested mountain terrain frequently is so greatly broken that patrols cannot maintain eye contact with the reconnaissance group main force as a means of sending visual signals. In these cases, it is recommended that intercommunication be maintained by intermediate patrols (between the group and main patrols), and, likewise, conforming to the situation, use of sound signals. Most often such signals may be disguised as calls of birds, animals and so forth.

Scouts operating in mountains will often find it necessary to ford mountain rivers. Considering the nature of mountain rivers it is best of all to get over the ford: when the current is up to 2 m/sec -- at a depth of not more than 1 m; when the current is 2-3 m/sec -- not greater than 0.7 m; when the current is 4 m/sec -- not greater than 0.5 m. Considering that the bottoms of mountain rivers are usually uneven and very rocky, it is very difficult to cross them in armored personnel carriers and motor vehicles.

To cross successfully under these conditions requires cleaning and levelling the bottom beforehand and thoroughly trained drivers.

Tanks must ford mountain rivers with swift currents by moving at an angle of  $30^{\circ}$  to the bank against the current.

In crossing mountain rivers in amphibious tanks and armored personnel carriers, when afloat they are directed at an angle against the current which takes into account the probable drift from the intended exit site on the opposite bank.

During night operations, the reconnaissance group complement must include means of firing equipped with night vision apparatus. Night vision apparatus may be used for communications, orientation in mountains, finding

bypasses in almost inaccessible areas, as well as for spotting enemy infrared apparatus. In addition, at night, on order of higher headquarters, light reference points may be provided for showing directions, in the direction of the group's operation and, when necessary, in its positions.

Patrols must be kept apart at night, but at some specified distance, so that they may see, hear, understand and support each other.

Sharply broken mountainous terrain often requires patrols to operate separately, isolated from neighboring patrols; therefore, they must always be ready to act independently, decisively and with initiative.

For successful operation in mountainous terrain, it is always necessary to attempt to occupy a commanding height or terrain, since to be higher will always be a more advantageous location than to be situated below.

Patrol vehicles (foot patrols) on reconnaissance must pay attention in the most thorough manner to intelligence indications by which the enemy may be detected. It is necessary to act quickly and decisively, so as not to delay the progress of the reconnaissance group main force.

A reconnaissance group main force must maintain a state of readiness to support patrols or to repel sudden enemy attacks. During the time of movement, the reconnaissance group observes patrols, the air and all sides as well.

When meeting the enemy or detecting some sign of his presence in a given area, patrols must inform the reconnaissance group commander quickly of this. After this, the commander personally goes to the patrol location and observes the enemy from there. Then, in accordance with the existing situation, he makes the most advantageous decision.

When meeting small groups or single vehicles of the enemy, the commander may decide to take them prisoner, but if it is not possible to take them prisoner -- to destroy them. The best method for capturing or destroying small enemy groups is ambush.

In case the reconnaissance group discovers an enemy approach in force, it is more advantageous to avoid combat and to set up observation of the enemy, with the aim of determining his strength and the nature of his operation. Subsequently, the reconnaissance group moves around the enemy, using folds in the terrain, and continues to reconnoiter in the previous direction.

It may turn out that the effort to avoid clashing with the enemy and to secretly go around him may not be successful. In this event, the reconnaissance group commander, without delay, gives the order to open fire on the enemy with all means of fire, and then to attack him skilfully and resolutely with his whole force, to attempt to seize prisoners and to obtain necessary information.

## Reconnaissance detachment

A reconnaissance detachment in mountains may be sent out during different types of troop combat activities: on the march and during meeting engagements, during offensive combat, during pursuit, on the defense in the absence of immediate contact with the enemy, as well as during withdrawal of the troops.

A reconnaissance detachment may fulfil the following missions.

On the march -- to spot the approach of enemy forces and presence of his nuclear weapons delivery means, as well as to determine his strength and lines of deployment for combat; to determine the passability of roads, and presence and nature of obstacles and obstructions.

During offensive combat -- to ascertain the enemy's center of resistance, locations of firing means emplacements, especially nuclear weapons delivery means; to reveal the presence of radioactively and chemically contaminated sections; to determine the nature of obstacles arising as a result of nuclear explosions, the condition of routes and their suitability for movement of all kinds of troops; to ascertain the approach of enemy reserves, their strength and lines of deployment for counterattack; to determine the start and direction of enemy retreat.

During pursuit of the enemy -- to establish the strength and composition of enemy screening units; to spot the approach of enemy reserves and their use; to determine the state of readiness of the enemy to use nuclear weapons; to determine the nature of obstacles and obstructions.

On defense when not in close contact with the enemy -- to establish in good time the strength, composition and direction of operations of enemy reconnaissance and forward units, the approach of the main force, area of concentration and line of departure for attack; to reveal the presence of enemy means of nuclear weapons use and procedure for their utilization; in defensive combat on the move -- to reconnoiter flanks and junctions.

The organization and nature of reconnaissance detachment operations in mountains are influenced by the following features:

- an insignificant number of routes for detachment movement, especially for wheeled and tracked vehicles;

- the steepness and tortuousness of ascents and descents, which greatly reduce the reconnaissance detachment's speed of movement;

- movement of wheeled vehicles is more difficult, even on comparatively gentle ascents and descents because of ice cover in winter time;

- the nature of mountainous terrain, which favors widespread enemy use of ambush, construction of obstructions in narrow passages, blowing up of bridges, crossings and individual sections of roads;

-- a large number of dead areas and hidden approaches, which limit observation of the enemy and effectiveness of fire.

A reconnaissance detachment operating in mountains, as a rule, will be road bound. If it is assigned a reconnaissance zone, including several directions, it has to send out patrols in every one of these directions. However, in view of the separation among these directions, communications among patrols and control of them will be greatly hampered or quite unrealizable. Therefore, patrols are converted into separate, independent reconnaissance elements, not having contact with the reconnaissance detachment main force. From this, it follows that reconnaissance detachments operating in mountains must be assigned, not a zone, but a direction for reconnaissance.

The composition of a reconnaissance detachment operating in mountains more often -- a reinforced rifle company in armored personnel carriers or a tank company; however, in many cases, the composition of a reconnaissance detachment may be mixed (motorized rifle element, tanks, armored personnel carriers, motorcycles), but during operations in particularly difficult sections a reconnaissance detachment may be completely on foot. It all will depend on mountainous terrain conditions, but, in all cases, the composition of a reconnaissance detachment must include motorized infantry.

The battle formation of a reconnaissance detachment operating in mountainous terrain differs from that on level terrain. The distance between a reconnaissance patrol and the detachment main force must not exceed 1.5-2 km, while on level terrain this distance will be 10-15 km and more.

The number of reconnaissance patrols sent out by the reconnaissance detachment is determined by the detachment commander, depending on conditions, the nature of the terrain and the presence of roads. If the enemy is at a considerable distance, it is sufficient to have one reconnaissance patrol forward; as the area of probable encounter with the enemy is approached, the number of patrols in mountainous terrain may be increased to three or four, or even to five.

During operations in almost inaccessible mountainous terrain, patrols quickly become exhausted; therefore, the reconnaissance detachment commander must provide for their replacement by previously formed and ready-for-action supplementary patrols among the personnel of the main force.

For survey of terrain to the side of the main route of movement, as a rule, foot patrols, composed of physically well-prepared and clever scouts, are sent out to a distance of not greater than 300-500 m from the reconnaissance detachment main force. After the detachment main force passes through, the foot patrols rejoin the reconnaissance detachment, and there must be other patrols in the detachment main force ready for dispatch in new directions.

During past wars, reconnaissance detachments operating in mountains employed the following battle formations. The advance point moved at a

distance of 1-2 km ahead of the reconnaissance detachment main force. The rear point moved 500 m from the detachment main force. In those cases in which the terrain did not permit the use of wheeled or tracked vehicles, foot patrols were sent out. Thus, for example, a reconnaissance detachment operating in the Carpathians conducted reconnaissance in the battle formation shown in Fig. 35.

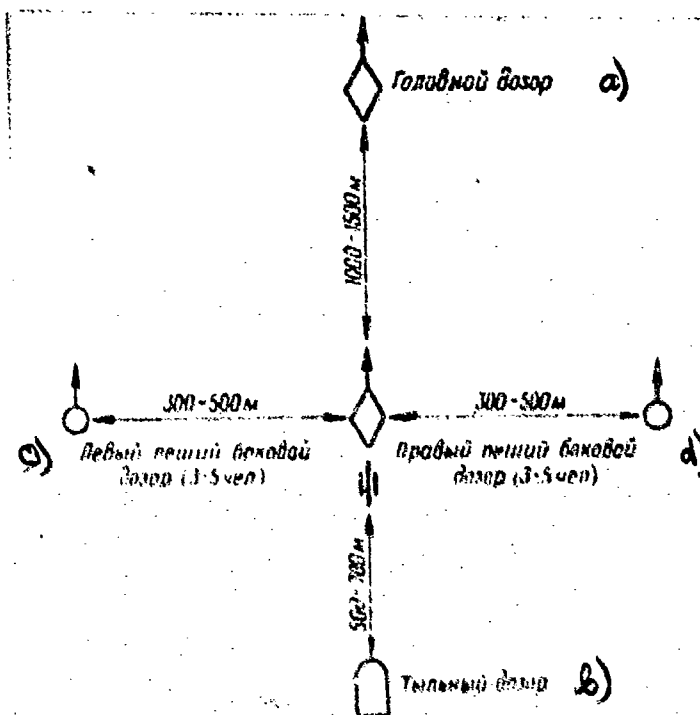


Fig. 35: Battle formation of a reconnaissance detachment in the Carpathians (1944)

- Key:
- a. Advance point
  - b. Rear point
  - c. Left flank patrol (3-5 men)
  - d. Right flank patrol (3-5 men)

In preparing a plan for operating in mountains, the reconnaissance detachment commander, depending on the nature of the terrain, must provide routes which insure the greatest speed of movement and maneuverability of patrols and the detachment main force. He also must take into account the steepness of ascents and descents in estimating the speed of movement en route and must determine the detachment speed of movement over various sections of the route. The steeper the ascent, the slower the movement must be and the more frequent the halts. Movement of the detachment to contact with the enemy must be carried out with maximum speed. When the detachment finds itself in immediate proximity to the enemy forward units, it must

3

move by bounds from one turn of the road to another; all trails and roads which intersect the detachment's main route must be surveyed thoroughly by supplementary patrols sent out from the reconnaissance detachment main force complement, as a sudden enemy strike on the reconnaissance detachment main force flanks and rear is possible from these directions in mountains.

Moving through defiles on narrow roads on which deployment is difficult and encountering, ahead and above, places where the enemy might be, several concealed armored personnel carriers (tanks) should be left behind, so that they may be ready to open fire on the enemy and to cover the reconnaissance detachment attack or withdrawal.

In addition, during movement by such roads, it is necessary to consider the possibility of hostile air attack, for which the distance between elements of the reconnaissance detachment main force must be increased. During aerial attacks, the reconnaissance elements at the head of the detachment must rush ahead.

It is best to reconnoiter an enemy in movement in valleys and narrow places. Therefore, sometimes it is advantageous to await the entry of an enemy column into a valley or to speed up movement, to knock out the enemy screening force and to occupy a place which insures a good field of view. We corroborate this with an example.

In 1944 the enemy retreated through the Lomnitsa River valley in a northwesterly direction in the vicinity of the small town of Peregin'sko. Reconnaissance detachment commander, Captain Levchenko, was given the mission of making an end run around the retreating enemy column, determining its composition and cutting its retreat route (Fig. 36).

This was the composition of the reconnaissance detachment: a rifle battalion in vehicles, 10 self-propelled guns with a submachine gun party, and an artillery battery.

At 0600 hrs, 28 July 1944, the reconnaissance detachment departed the Maydan area to accomplish the mission. An advance point was at the head of the movement. The detachment moved on the same route on which the enemy was retreating, because there was no alternate route before entering the valley in the vicinity of Peregin'sko.

At 0800 hrs the advance point commander reported that he had reached Nebyluv, and that the retreating enemy element was moving by the Lomnitsa River valley in the direction of Ol'khuvka. In addition, he reported that there was a road in the vicinity of Nebyluv by which the enemy could be outdistanced.

Receiving this information, the reconnaissance detachment commander decided to annihilate the enemy column in the vicinity of Ol'khuvka. This was the plan: the self-propelled guns with their party to outdistance the column in the Ol'khuvka vicinity, to cut the road by which it moved and to annihilate it by simultaneous strikes at the head and tail.

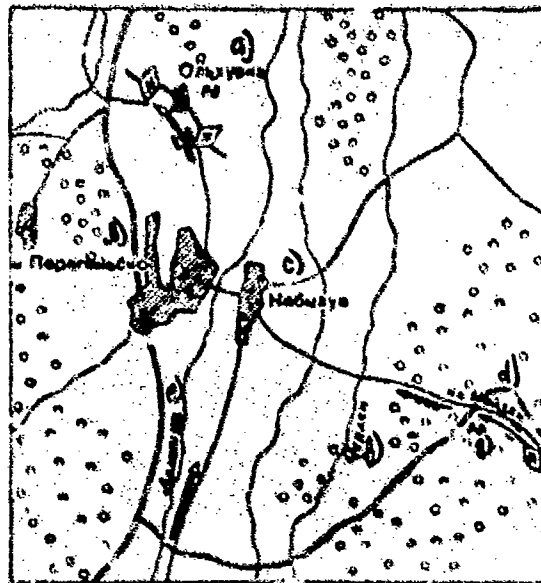


Fig. 36: Reconnaissance detachment operations in the vicinity of the small town of Peregin'sko in 1944

- Key:
- a. Ol'khuvka
  - b. Small town of Peregin'sko
  - c. Nebyluv
  - d. To Maydan
  - e. Lomnitsa
  - f. Cherlen
  - g. Reconnaissance detachment

By 0930 hrs the self-propelled guns with infantry party had passed ahead of the enemy by the alternate route, unnoticed by him, and had occupied the only road by which he moved. The self-propelled guns went into position along the road and began to wait for the enemy. As soon as the head of the column approached, fire was opened. The enemy, not expecting the sudden onslaught of the scouts, threw away their arms in panic and, not showing any organized resistance, yielded themselves prisoners. In all, in the vicinity of Ol'khuvka, the scouts took 560 soldiers and officers prisoners and plenty of different kinds of equipment.

As combat experience shows, in the process of accomplishing a mission, a reconnaissance detachment frequently has to conduct reconnaissance while fighting. Conducting reconnaissance while fighting in mountainous terrain has a number of peculiarities. A reconnaissance detachment attracts the enemy's attention to the front with a small amount of fire, while the main force launches an envelopment or a deep turning movement, so as to reach the enemy by the flank or rear and then annihilate him.

If an enemy defensive line is spotted in the direction of reconnaissance detachment operations, the reconnaissance detachment commander must

organize a reconnaissance with the task of determining the enemy strength his defensive front, the nature of defensive works, gaps and flanks. Special attention must be directed to reconnoitering enemy nuclear attack means.

In order to obtain reconnaissance data communicated from aircraft conducting reconnaissance, a radio receiver will be provided to the reconnaissance detachment commander on order of the commander dispatching the reconnaissance detachment.

When a reconnaissance detachment encounters an enemy reconnaissance or outpost, all measures must be taken not to give itself away, using the broken mountain terrain, going around the enemy and returning to its main force. This is a basic requirement, which the reconnaissance detachment must strive to fulfil. However, circumstances may develop in such a way that the reconnaissance detachment cannot go around the enemy forward units and must clash with them. In this case, the detachment suddenly attacks them, captures prisoners and documents and, after that, using hidden approaches, reaches their main force for the purpose of determining his composition and direction of movement.

The main obstacle to the utilization of a motorized reconnaissance detachment in mountains is the absence of roads, and in those directions in which there are roads, -- the steepness of ascents and descents, as well as their narrowness, frequent curves and twists in roads and trails, usually winding over rocky spurs of mountain ridges.

Military vehicles can be used in sectors which have slopes of up to 45° and which are free of talus and large rocks. Experience in combat operations in postwar exercises, however, shows that, notwithstanding the difficulties of using tanks and armored personnel carriers in reconnaissance, they find wide use in mountains when they are equipped appropriately, movement is well-organized and driver personnel are exceptionally well-trained. The use of tanks and armored personnel carriers is particularly advantageous when the reconnaissance must capture isolated points and defiles, cover rifle element actions and negotiate sectors (areas) where there has been a nuclear explosion.

In considering reconnaissance detachment operations, it is especially necessary to speak of terrain reconnaissance in mountains, since the success of our troops depends in great measure on the completion of these missions. Terrain reconnaissance is conducted for the purpose of determining the nature and features of the relief, natural obstacles and terrain features, condition of soil and roads, determining the degree of influence of the terrain on its troops' and the enemy's dispositions and operations and, especially, on the use of nuclear weapons, other means of mass destruction and protection from them.

## Features of terrain surveys in mountains by reconnaissance elements

### Survey of ravines (gorges, hollows)

Sudden actions on the part of the enemy must be expected in ravines, narrow mountain passages, and on roads and trails. It is in just these places most of all that the enemy will set up ambushes and conduct raids. Therefore, ravines, gorges and hollows must undergo thorough surveys. In doing this, special attention must be given to survey of peaks at the sides of ravines. For this purpose, patrols must climb the slopes of peaks on both sides of gorges and survey them thoroughly from above.

Reconnaissance groups may move through a gorge if patrols inform the commander of the enemy's absence. A reconnaissance group main force moves along the bottom of a ravine (gorge), provided that patrols moving along the slopes or ridges are in echelon ahead of the group, that is, so that they have the opportunity of warning the reconnaissance group of the enemy's presence in good time.

If a gorge (ravine) is encountered on the route of movement, which goes to the side of the main route, the reconnaissance group commander must send supplementary patrol vehicles or foot patrols to survey them. Only after receiving information of the enemy's absence from such places may the reconnaissance group continue its movement on the given route.

A reconnaissance group conducts a survey of a peak by moving on its slopes or by moving around its base. A survey of a peak can be made by going across its crest, but for this the reconnaissance group commander sends out foot patrols or, if the terrain permits, patrol vehicles to survey the reverse slopes. A patrol vehicle (patrols) moves out secretly to the crest for the purpose of observing the terrain ahead. If the enemy is not discovered, the group commander is so informed, after which the reconnaissance group crosses over the peak.

If there are several peaks on the reconnaissance group's route of movement, they must be surveyed in succession, one after the other.

Hollows, ravines, groves, bushes, boulders and so forth on the heights must be inspected with particular thoroughness, since it is at such places that the enemy most often sets up ambushes.

### Survey of populated places

Populated places and separate buildings in the mountains are most often situated at a mountain's base, on mountain slopes and the entrances of gorges. It must be remembered that the enemy usually will not occupy populated places in forested mountain terrain, but will be situated on heights.

Defenses of a populated place situated in a low place (in a gorge) will not be constructed by the enemy on its outskirts, but on the heights surrounding the populated place. Survey of a populated place in mountains, thus is conducted from a mountain slope.

Patrols must enter populated places secretly, from the kitchen gardens, gardens, vineyards and the back parts of dwellings. Subsequently, patrols survey buildings on the outskirts, and if there are local inhabitants, it is compulsory to interrogate them with such questions as: are there or are there not any enemy, and what kind; when was the enemy here, in what strength and where did he go.

Patrols must take all precautionary measures when moving along streets or the outskirts of populated places and particularly suspicious structures should be surveyed. Nothing may be touched, since anything may be booby-trapped; the use of provisions left by the enemy is forbidden also.

When a patrol vehicle (patrols) reaches the opposite outskirts, it must thoroughly survey the terrain ahead. If there is no enemy, the "No enemy" signal is given and the patrol vehicle (patrols) continue to carry out the assigned mission.

A reconnaissance group main force must stay under cover outside a populated place as long as the patrols have not completed the survey; only after this does the group continue movement.

A reconnaissance group begins a survey of woods by observation of its edges from a well-covered place. While observing the edge of the woods and the woods, it is necessary to attempt to establish the presence of the enemy by various signs.

The following may be signs of the enemy's presence in woods: tank and vehicle tracks entering or leaving the woods; uneasy bird flight; broken branches and ragged bark on trees; campfire smoke; glitter of optical apparatus lenses and so forth.

If signs of the enemy presence in the woods are not discovered, patrol vehicles (patrols) are sent out to survey the woods, but the reconnaissance group main force stays under cover, observing the patrol vehicles.

If the enemy is not found at the edge of the woods, patrol vehicles (foot patrols) give a signal to the group commander; upon receiving a decision from him, reconnaissance in the depths of the woods begins.

Survey of wooded sections of mountainous terrain frequently will be conducted on foot by a reconnaissance group, since reconnaissance group operations in tanks and armored personnel carriers, in view of especially difficult road conditions, is very much hindered.

When surveying woods, bushes and groves, patrols give particular attention to searching for minefields, contaminated areas and other obstructions.

prepared by the enemy. When conducting reconnaissance in woods, their edges, treetops, thick undergrowth, ravines, pits, obstructions, rockpiles, and other places which are convenient for arrangement of ambushes by the enemy are subjected to a thorough survey.

If the woods are not large, patrols will comb them at eye-contact distance, but the reconnaissance group main force bypasses small woods or groves.

While patrols survey the edge of a woods, the reconnaissance group remains under cover, prepared to support them. The reconnaissance group commander personally observes the patrol activity and, when he is certain that the patrols have entered the woods, brings the reconnaissance group up to the woods.

When moving through woods, the main force follows the patrols at a shortened distance, moving non-stop at the greatest possible speed. Observation at this time is very thorough on all sides, and weapons are prepared to open fire quickly. Before leaving the woods, patrols make a short halt at the edge of the woods and survey the terrain ahead.

Not spotting the enemy or signs of his presence, patrols so inform the commander of the reconnaissance group and continue to carry out the assigned mission, and the group main force exits from the woods after them.

#### Survey of mountain rivers

Mountain streams and rivers pose serious obstacles to movement, although more fords may be found in mountain rivers than in rivers on level terrain.

Survey of rivers determines: river width and current speed; river bottom soil; the presence of rapids and whirlpools in the river; the nature of the banks (precipitous, steep, forest covered); whether there are fords and their nature; passability; from where and which roads and trails approach the river in the reconnaissance sector; the presence of materials for improvising river fords and crossings; the presence of obstructions installed on the river bottom by the enemy.

In reconnoitering the ford it is necessary to determine the depth of the ford, current speed, length and width, hidden approaches to the ford, steepness of the descent to the ford and the exit from the river, passability of the ford for every kind of unit.

A reconnaissance group survey of a river must begin with a reconnaissance of approaches to it. Spotting no enemy on approaches to the river, the reconnaissance group commander sends out patrols (patrol vehicle) for a first-hand survey of the river.

Patrols (patrol vehicle), using hidden approaches, move up as close as possible to the river and organize observation of its banks.

In conducting observation, they determine the current speed, the nature of the banks and possible crossing places, sites for launching crossing-landing means, the presence of mine-explosive barriers, the presence of explosive barriers in the water (established by means of trawling with the help of a "grappling hook," thrown into the water from shelter).

After this, if assigned the task of reconnoitering the opposite bank, patrols, screened by the reconnaissance group main force, cross to the opposite bank by fording or using available materials and occupy a convenient site for observation. If the opposite bank is occupied by the enemy, the reconnaissance group commander notifies the commander dispatching the group of this and sets up observation of the enemy from his bank.

If there is a bridge or some other kind of crossing over the river, the reconnaissance group must survey the terrain around the crossing and define hidden approaches. Patrols, screened by the group and using the sharply broken terrain, move as close as possible to the crossing and ascertain the presence of the enemy and the nature of the bridgeheads, and estimates the carrying capacity, roadway width and length of the bridge.

This is the basic procedure for survey of terrain and various terrain features in mountains by a reconnaissance group.

#### Radiation and chemical reconnaissance

All reconnaissance agencies operating in mountains, regardless of their composition, must not only conduct reconnaissance of the enemy and terrain, but must, at any time and in all circumstances, conduct radiation and chemical reconnaissances.

Radiation and chemical reconnaissance is carried out by chemical scouts specially assigned to reconnaissance agencies and equipped with special apparatus for radiation and chemical reconnaissance. However, not only specialists, but all scouts in a reconnaissance agency complement, must be able to conduct radiation and chemical reconnaissance.

Radiation and chemical reconnaissance in mountains will be conducted mainly along roads, trails, country roads, in gorges, valleys and on passes.

When organizing a reconnaissance, it must be taken into account that the persistence of poisonous substances is increased in forested mountain terrain, and that contaminated air moves a long way in valleys and gorges.

During a reconnaissance, particular attention is paid to obstructions, bridges, ravines, gorges and other places where it is convenient to establish chemical contamination.

In conducting reconnaissance, it must be considered that mountain relief may have a strong influence on the fall of radioactive dust from a nuclear explosion cloud, shifting it away from the prevailing wind direction. This may lead to a number of cases in which areas located further from the axis of movement of the nuclear explosion cloud may be more heavily contaminated than areas closer to it.

Small unit radiation-chemical reconnaissance operations in mountains entails, as in all reconnaissance agencies in general, additional difficulties. Off-road movement of armored personnel carriers (motor vehicles) in nearly inaccessible terrain frequently is ruled out, and small units must carry out the reconnaissance mission on foot, which takes considerably more time and effort.

Chemical reconnaissance patrols (KhRD) carry out radiation and chemical reconnaissance, in addition to observation. A chemical reconnaissance patrol usually consists of 3-5 chemical scouts. A patrol is supplied with appropriate radiation and chemical reconnaissance apparatus for conducting reconnaissance. The reconnaissance detachment (group) commander determines the location of the chemical reconnaissance patrol on the basis of the specific situation; he may operate either in the patrol or in the column of the detachment (group) main force.

A chemical reconnaissance patrol in the complement of a reconnaissance detachment (group) may reconnoiter and mark sections of the route which are contaminated with poisonous and radioactive substances, find ways around contaminated sections of roads and terrain. Having discovered the presence of radioactive contamination, a chemical reconnaissance patrol determines the boundary of the contaminated sector and guards it with appropriate signs, simultaneously marking the direction for bypassing zones with high radiation levels.

### Conclusion

Operations of scouts in mountains entail great difficulties.

Therefore, personnel of reconnaissance elements must possess high moral-fighting qualities.

Only scouts who are completely devoted to the work of the Communist Party and the Soviet government, and who wholeheartedly love their native land, can successfully accomplish any mission and, notwithstanding any difficulties of mountainous terrain conditions whatever, obtain valuable information about the enemy. Heroism, will to win, activity and speed of operation, military cunning, sharpwittedness and resourcefulness -- these are qualities inherent in our scouts, which must be cultivated in the course of everyday political and military training.

Successful operation of reconnaissance elements in mountainous terrain, apart from the high moral-physical qualities of scouts, depends on their physical readiness, their possession of certain skills and ability to operate in mountains.

Different mountainous terrain conditions exert an influence on the organization and conduct of reconnaissance by various methods. One or another means or method of reconnaissance operations in mountains can be used effectively only if they are used in conformance with specific conditions of terrain and situation.

In order to overcome obstacles, scouts must use the most advantageous methods. The scout who stands before every obstacle, not knowing how to overcome it, is helpless. Therefore, scouts must be well-trained in the techniques of overcoming various mountain obstacles and in the proper use of mountain equipment.

The basic mission of reconnaissance in different types of troop combat activities in mountains, as on level terrain, is the reconnaissance of enemy nuclear weapons delivery means and other important objectives, with which to insure the possibility of timely and more effective use of our strike means. Apart from reconnaissance of the enemy, terrain reconnaissance is conducted for the purpose of insuring the opportune, safe and secret movement of our elements.

Skill in conducting reconnaissance gives very great aid to a commander in arriving at decisions which will be most favorable to the success of our troops' operations.

# TABLE OF CONTENTS

	<u>Page</u>
Preface	1
Mountainous terrain and its influence on the organization and conduct of reconnaissance	2
Features of mountainous terrain	2
Climate of mountainous regions	4
Natural dangers in mountains	5
Rockfalls	6
Mountain roads	6
Mountain rivers	7
Effect of mountainous terrain on damage effects of nuclear weapons and protection against them	8
Mountain movements	9
Technical equipment and methods for crossing mountain rivers	19
Orientation in mountains	24
Uniforms, equipment, weapons and ration supply for scouts in mountains	26
Organizing rest for scouts in mountains	27
Organization and conduct of reconnaissance in mountainous terrain	31
Reconnaissance methods in mountains	32
Observation	32
Organization of observation	34
Equipment for observation posts	37
Duty in observation posts in mountains	38
Listening in mountainous terrain	40
Raids in mountainous terrain	45
Ambushes in mountainous terrain	51
Preparation and organization of ambushes	51
Methods of operation from ambushes	56
Reconnaissance in the enemy rear	58
Procedure for dispatch and movement of groups in mountains	61
Scout operations in the enemy rear	62
Military operations of reconnaissance patrols, reconnaissance groups and reconnaissance detachments in mountainous terrain	66
Combat reconnaissance patrols	66
Reconnaissance group	68
Reconnaissance detachment	73
Features of terrain surveys in mountains by reconnaissance elements	79
Survey of ravines (gorges, hollows)	79
Survey of populated places	79
Survey of mountain rivers	81
Radiation and chemical reconnaissance	82
Conclusion	83